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ABSTRACT

Six papers on interlanguage are presented. The first, "Language Transfer," experimentally tests Robert Lado's contrastive analysis principles on the transfer of language skills to second language acquisition. The second paper, called "Interlanguage," builds on this work in discussing the structured nature of interlanguage and autonomous material found in interlanguage that is in neither the native nor the target language. The third paper, "The Interlanguage Hypothesis Extended to Children," reports on data gathered in a Toronto French immersion program, showing that, at least in some settings, it is plausible to infer that young children do form interlanguages. The paper called "Systematicity/Variability and Stability/Instability in Interlanguage Systems" addresses a number of issues concerning variation in interlanguages, based on variable data from morphology, syntax, and semantics. The fifth paper, "Two Perspectives on Fossilization in Interlanguage Learning," looks at the "strong" and "weak" conceptions of fossilized language that argue for or against the inevitability of fossilization, and the potential for teaching communication under these conditions. The last paper, "Researching the Discourse Domains View of Interlanguage," summarizes recent work in this field, focusing, to some degree, on the application of discourse analysis to Southeast Asian languages and language instruction. A list of 142 references is included. (MSE)

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Papers in Interlanguage

Larry Selinker

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Larry Selinker

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CONTENTS

		Page
I.	INTRODUCTION	1
II.	LANGUAGE TRANSFER	6
III.	INTERLANGUAGE	25
IV.	THE INTERLANGUAGE HYPOTHESIS EXTENDED TO CHILDREN	37
V.	SYSTEMATICITY/VARIABILITY AND STABILITY/INSTABILITY IN INTERLANGUAGE SYSTEMS	46
VI.	TWO PERSPECTIVES ON FOSSILIZATION IN INTERLANGUAGE LEARNING	76
VII.	RESEARCHING THE DISCOURSE DOMAINS VIEW OF INTERLANGUAGE	96
FOOTNOTES		113
REFERENCES		118

I. INTRODUCTION

I was quite pleased to be invited by RELC to provide this volume of Papers in Interlanguage. Though my experience in Southeast Asia has been limited, it has, nevertheless, been extremely positive. Numerous colleagues from ASEAN countries have told me that "the interlanguage hypothesis", in its several forms, is "quite friendly" to linguistic and educational developments in the region. That feedback is most gratifying. Each of the papers in this volume has been at least slightly revised for the ASEAN audience. In doing these revisions, I have tried to use the criterion of "linking things together through time", while also attempting to keep the original spirit of each of these papers. I am very lucky to have had splendid colleagues over the years, and the ones represented here -- Dan Douglas, Guy Dumas, Uli Frauenfelder, John Lamendella, Merrill Swain and Elaine Tarone -- are particularly dear to me. In the time-consuming process of producing publishable materials (and bringing them to publication), I have learned much from these colleagues. The revised versions of these Papers in Interlanguage, however, are entirely my own and each of the original colleagues should feel no responsibility for what appears here.

The first paper in the volume, "Language Transfer", is an attempt to experimentally test Lado's contrastive analysis (CA) dictum that:

> ... individuals tend to transfer the forms and meanings, and the distributions of forms and meanings of their native language and culture to the foreign language and culture -- both productively when attempting to speak the language and to act in the culture, and receptively when attempting to grasp and understand the language and the culture as practised by natives. (Lado, 1957: 1)

This, in turn, followed from Fries' influential view that:

> The most efficient (teaching) materials are those that are based upon a scientific description of the language to be learned, carefully compared with a paralled description of the native language of the learner. (Fries, 1945: 9)

One dimension of Lado's work was indeed deeply empirical and led directly to the current vibrant interest in interlanguage (IL) studies in second language acquisition (SLA). On page 72 of his classic work, Lado presents a series of important thoughts that set the tone for much of today's current issues in IL and SLA. For example, he warns that:

> The list of problems resulting from the comparison of the foreign language with the native language...must be considered a list of hypothetical problems until final validation is achieved by checking it against the actual speech of students. (Lado, 1957: 72, emphasis added)

"The actual speech of students" being their IL forms, what the field of SLA continues to do is check its hypotheses against these forms. Many of these hypotheses come from some version of CA, perhaps linked with universal considerations.

Lado also was concerned with individual differences:

> In this kind of validation we must keep in mind of course that not all speakers of a language will have exactly the same amount of difficulty with each problem. Dialectal and personal differences rule out such a possibility. (Ibid, 72)
>
> That is, variation of many sorts will occur. [The relevance of Lado's work to current concerns in IL and SLA is discussed in depth in Selinker (Forthcoming).]

Lado's personal influence directly led to the study underlying the first paper in this volume, "Language Transfer". This paper is an attempt to provide such validation. The study asks questions which are still being asked in much current research in language transfer. One such question is: what can be or actually is transferred? Another question is: how does language transfer occur? And a final question which figures prominently in the last section of the study is: what types of language transfer occur? A taxonomy of language transfer is there presented, along with some caveats. In the paper, Lado's "tend to" remarks (see above) are taken seriously and, in a controlled way, the linguistic and psychological factors involved in one aspect of language transfer are investigated. The object of inquiry in this study is the English IL speech of thirteen- and fifteen-year-old Israeli children, native speakers (NSs) of Hebrew, compared with (a new type of CA) the speech of the native Hebrew of the same children, and with (still a different type of CA) the speech of native speakers of English. Definite transfer effects of the native Hebrew on the Hebrew-English IL word order are found. An additional interesting result is that semantic effects of surface syntax are found both in native language (NL) and corresponding IL structures. [Cf. Gass and Selinker (1983, Chapter 1) and Selinker, (Forthcoming, Chapter 7) for further discussion of the place of this study in the movement from CA to IL as a part of SLA.)]

The next paper in the volume, the "Interlanguage" paper, builds on the previous paper in discussing the structured nature of IL, as well as autonomous material found in IL, linguistic material that is neither in NL nor in TL. The previous widely-held view of learner speech as a (random) collection of errors was thus strongly challenged. Rutherford has pointed out (interview ELTJ, 1983: 37.2, 129ff), that the term "interlanguage" filled a semantic gap in the early 1970's. That is certainly true and is more important than meets the eye. It turns out that CA is the tradition where most early IL and SLA researchers came from. However, one of the big faults of CA as a predictor of learning problems was that two linguistic systems were talked about, NL and TL (as in many passages in Lado, 1957), but three systems, with the third unnamed, seemed to me to be always implied. The "Interlanguage" paper in this volume notes that several researchers (e.g. Corder, Nemser, James, as well as myself) discovered this fact independently at about the same time in the early to mid '60's. The research seemed to begin to solidify with the naming of the phenomenon as IL, along with four sets of developments.

The first development was the ready acceptance of IL as a reality. Lightbown (1984) has pointed out that one of the most important accomplishments in SLA has been that we have shown that learner language as IL has structure. Second, there was a coming together of two groups of scholars, those from adult second language teaching interested in CA, especially from English language teaching (ELT), and those from child language acquisition, hence the name "second language acquisition" to parallel it with first. The group

from CA and language teaching, following Lado, at first called the discipline "the psychology of second language learning"; this latter name has since disappeared. The third development concerned the beginning of the teaching of courses, or parts of courses, in IL and SLA in some linguistics departments and in some teacher training programs. One colleague told me that it was necessary to go through a progression of names over the years to get the subject matter accepted, I think from CA to error analysis (EA) to SLA. In my own case, I had to initially teach IL material in the late 60's in a linguistics department under the vague rubric "Topics in Linguistics". This stage appears to be happily behind us and the study of IL in SLA seems to have solidified.

A fourth development was the gathering of IL data in an empirical way by more and more members of several groups of scholars, those groups named above, as well as by students in the new courses in IL and SLA. An ever-increasing body of empirically-derived data helped us to focus in a principled way on the strategies, processes and constraints underlying these data. The "Interlanguage" paper represents a first attempt to describe some central processes and strategies and the all-important phenomenon of fossilization.

Once the semantic gap was filled with the term IL, the next step seemed obvious: to go out and gather IL data. This was done, as mentioned above, in many settings and the third paper in the volume discusses one of these settings: Toronto French immersion. "The IL hypothesis extended to children" shows that in some settings at least, it is plausible that rather young children do in fact form ILs, a most important result for the ASEAN region. Children in the French immersion setting (and in other immersion settings) have been studied now for close to fifteen years and it is clear that in the French immersion setting, French-English ILs have been formed (see Harley and Swain, 1984 for an updated statement).

The next paper, "Systematicity/Variability and Stability/Instability in IL Systems", addresses a number of issues in terms of variation in IL. The issue of "systematic" is raised and several complications are discussed. Different types of individuals are then described. Variable data from IL morphology, syntax and semantics are presented and various communication strategies explored. This issue of variation in IL is a most current issue (cf. Kellerman et.al. 1985 and Ellis, 1985) and was the focus of the XIth University of Michigan Conference on Applied Linguistics, Ann Arbor, October 9, 10, 11, 1987. Paradoxically, to date, IL variation has not been the focus of a great many studies in SLA and it is hard to be conclusive here, except to say, that whatever the focus of a particular IL study, variable IL data seems to have appeared and begs for explanation. Thus, the Ann Arbor conference just mentioned.

Fossilization, the subject of the next to the last paper in this volume, has been a source of worry to many ELT and other foreign language teachers since it was first proposed in the late 1960's. After some fifteen years of a large number of IL and SLA studies, its existence seems quite clear. Thus, the concept of fossilization still seems to be both a viable and widely-used concept. But note that Klein (1984) suggests that there are advantages for fossilized ILs if the freezing takes place "at not too elementary a level". First, such ILs are stable and, second, they are "easy to master". If research proves that this latter point is correct, we may be approaching an understanding of the widespread prevalence of fossilization. This could

prove especially important to ELT teachers who worry about this phenomenon and some even report becoming "pessimistic", by their own words. In the past few years I have presented Klein's view (that fossilization may have advantages for communication and learning) to colleagues who are worried about this phenomenon and it seems to help. Researchers might wish to devote some effort to investigating the positive as well as the negative aspects of permanent fossilization. I have always thought that pessimism was unwarranted here, that one could teach around fossilization, especially within certain discourse domains. Discourse domains are discussed in the last paper in this volume.

The apparent factual status of fossilization (defined either as the cessation of IL learning, often far from TL norms or, perhaps more empirically, as forms that remain in IL no matter how much instruction or effort is spent on their "eradication") leads to thoughts about its inevitability. The strong version of fossilization argues for its inevitability, the weak version not. However, both agree that non-development of IL, i.e. that non-learning in SLA, is a problem and an important research area. However, to be clear on this point, nowhere is it claimed that fossilization means that learners cannot be taught to communicate in the L2. Various teaching strategies have been proposed to deal with apparently fossilized learners, but the most important point I wish to make here concerns "discourse domains". Teachers, especially those in language for specific purposes (LSP), might wish to become aware of those domains in which particular learners may wish to or need to communicate. Teachers might wish to adjust teaching to that, since in my experience, system-wide changes in IL, i.e. toward expected target language (TL) norms, appear to be more difficult to induce in learners than domain-specific IL change. Some rhetorical/grammatical "safe rule" data, for example, exists as perhaps a new type of learning/teaching data uniting pedagogical and IL research (cf. Selinker, Kumaradavidelu and Miller, 1985 and Submitted). Safe rules are briefly discussed in the last paper.

The last paper in the volume is an amalgam paper, a summary of work done in the last few years in the discourse domains perspective in IL learning. If it is true that one can teach around fossilization, especially within certain discourse domains, then it follows that fossilization differs by IL discourse domain. Then teachers and researchers might wish to explore the hypothesis presented in the last paper that not only fossilization, but language transfer (including avoidance) and various communication and learning strategies differ according to discourse domains in IL, as well. The heart of the argument in the last paper is that learners as language users in dealing with context in NN/N and NN/NN interactions, first create discourse domains, sometimes very personal ones, concerning various "slices of life" that are important and/or necessary for these learners to talk and/or write about. On a pragmatic level, some language testing implications are discussed, as well as practical research methodology techniques. These latter points may aid ASEAN colleagues in the carrying out of their own research, teaching and testing.

In this last paper an important curriculum level question is raised: Does the academic learning that learners in ASEAN schools do in their IL engage the learner's already-existing domains and IL structures associated with them or are unfocussed temporary contexts created for the class situation? This is an important question since discourse domains, for us (cf. Selinker, 1980; Selinker and Douglas, 1985; and Douglas and Selinker, In Press) are the main types of internally-created contexts, i.e. the way that the learner handles the learning of

IL in SLA and the learning of subject matter in his/her IL. One could study issues such as these by initially trying to map the IL associated with successful academic learning vs. the IL associated with unsuccessful academic learning. The exploration of Davies' (1984) notion, in the last paper of this volume, concerning the importance of reinforcing the learner's "part-knowledge" is relevant here, since our discussion raises the possibility that the recognition and rewarding to some types of incorrect part-knowledge, especially in academic and other LSP contexts may actually promote the development of IL, and maybe even subject matter learning, in these situations.

The volume is thus ended in an applied vein; this is most fitting since the original IL insights came from observing learners in classrooms, both in their ELT and subject matter classrooms. In conclusion, the IL journey, as part of the SLA journey, has been in progress for over twenty years now and is still going strong. Some version of the CA idea is still reasonable with language transfer best thought of as a selection process of NL "cross linguistic influence", (cf. Sharwood Smith, 1982). It is recognized as having and important influence on the development of IL. ILs can form in many settings and at a surprisingly early age. Context and variation of all kinds are now being included in careful empirical IL studies. Fossilization is seen as a very real phenomenon, but one that a teacher can "teach round" if discourse domains important to learners are carefully integrated into the teaching approach. Fossilized learner systems seem to have important functions for learners. It might be that some types of learner IL "part-knowledge", if reinforced, may actually promote SLA and attendant subject matter learning.

All the above involve important empirical issues that will be closely studied in the next decade. I particularly invite fellow ELT and LSP ASEAN teachers to study these papers and invite colleagues to communicate with me. I fear that our current IL data base is too "English-biased" to be convincing. We need to understand more of the true language- and IL-heterogeneity that exists in the world. Demystefying research that concerns teachers as they interact with the IL of their students, so that all can contribute to understanding language acquisition and the complex interaction of language and subject matter learning, has always seemed to me a worthwhile goal. I hope the materials presented in this volume aid in that end.

II. LANGUAGE TRANSFER*

This chapter considers the phenomenon of language transfer, i.e. "cross linguistic influence." The problem of "transfer" of the patterns of one's native language to a foreign language is well known to linguists as a general phenomenon. However, the extent of our information about this phenomenon and, hence, our understanding of it, is quite limited and uneven. Questions, for example, as to what language transfer consists of, what actually is transferred, how language transfer occurs, and what types of language transfer occur have not been adequately treated in an empirical manner. The study reported and discussed in this chapter attempted to obtain experimental evidence pertaining to these questions. Necessary as background to this goal was the more general aim of probing the feasibility of conducting experimentation in language research whenever it becomes clear that extrapolation from pure linguistic research is improper, since this latter research does not cover and does not even pretend to cover the relevant empirical domain, the relevant domain in our case being that of second and foreign-language performance and second and foreign-language learning. Furthermore, consideration was given in this research to the crucial question of the exact place of linguistic description in such experimentation.

This chapter provides a discussion of these and subsidiary issues in terms of a series of experiments which focus on the transfer of syntactic entities from the Israeli's Hebrew to his attempted production of English. Operational definitions are provided for various types of syntactic transfer as well as, in a final speculative section, for various types of language transfer in terms of any native and foreign language situation, no matter what linguistic level is isolated.

2.1 BACKGROUND TO THE PROBLEM

Anecdotal discussion is readily available to augment and explain what the layman perceives as a "foreign accent," his feeling, for example, that the foreigner's /r/ does not match his, or that the foreigner's word order is all wrong, or that the foreigner seems to be using idioms in a strange way, and so forth. The universal character of the susceptibility of one language to influence from another[1] makes this general problem worthy of careful linguistic, psycholinguistic, and sociolinguistic investigation. It is reasonable to assume that most people at some point in life, if not during a good part of life, experience the effect of language transfer. Another impression complicating the matter is that not only is the phenomenon itself universally diffused throughout the world, but the extent of its presence may vary greatly at any given time period or even place. Consequently, any serious treatment of the subject should refrain from mere multiplication of anecdotal instances and speculation about them, activities which cannot materially increase our understanding of language transfer.

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* This is a revised version of a paper which originally appeared in General Linguistics, 1969: 9.2, 67-92.

Historically, relevant discussion of the transfer of linguistic entities from one language to another has appeared in the literature of two fields of endeavor: bilingual studies (Weinreich, 1953) and applied linguistics (Lado, 1957). In general, it might be pointed out that most authors assume that transfer is there and that these authors have not attempted to treat the questions posed at the beginning of this chapter. It should be noted that although the word "transfer" has many meanings and is used technically in several fields of endeavor, the undefined notion of the transfer of linguistic entities from one language to another results from an adaptation of the psychologists' concept of "transfer of training," whether defined narrowly as "the effect of a preceding activity upon the learning of a given task" (Osgood, 1953, p. 520; italics his), or broadly as "the impact of prior experience upon current learning" (Ausubel, 1963, p. 28). When and where the concept of transfer first entered the literature of applied linguistics and bilingualism is not exactly clear. Presumably, "preceding activity" or "prior experience" was identified with the native language, while "given task" or "current learning" was identified with the second or foreign language. Historical analogies of this sort should not, however, lead one to automatically assume that such transfer of linguistic entities is a specific instance of the transfer of training--a traditionally held view, e.g., Rivers (1964) and Politzer (1965). Three considerations lead to a negation of this view. In the first place, behind the concept of transfer of training lies a view of learning "which provides a consistent picture of behavior, from simple conditioning and maze running in the white rat, to complex language performances in the human" (Osgood, 1953, Preface)--a noble aim, but hardly an acceptable current view. Osgood's more recent attempt (1966) to reconsider three basic points of Chomsky's attack (1959) against this general view of learning still leaves one with the impression that the basic position concerning this "consistent picture of behavior" has not been modified. Second, evidence has been provided by Briere (1966) that in a detailed consideration of transfer, the linguistic and psychological parameters do not overlap. Finally, Carroll (1968) in a very useful paper has carefully surveyed the literature of psychological learning theory, especially that of verbal learning, in terms of its relevance to transfer in foreign-language learning. His conclusion is that this theory is pretty much irrelevant, primarily because (1) the variables are different, i.e., few studies in experimental psychology talk about the learning of complex habit systems such as language, and (2) in psychological experiments, the first system is usually forgotten, which is not the case with language.

One of the problems with many structural contrastive analyses is the common attempt by the authors to adjust their data--after the data are in--to fit one of the learning theorists' models. Most authors are sufficiently vague to escape detailed criticism, but an interesting case is that of Kleinjans (1958) who searched carefully through the psychological literature for a relevant "theory of transfer" and concluded that he was "unable to find one which would be applicable to language" as structural linguists see it (Kleinjans, 1958, p. 61). However, Osgood's "transfer surface" and "transfer paradigm" (Osgood, 1953, p. 520ff) seemed to him "closest to meeting this need," but not all of that model was relevant and even for those parts which seemed most relevant, "the fit is not exact" (Kleinjans, 1958, p. 66). To make the fit more exact, Kleinjans had to make some adjustments; the most spectacular concerned the claim of a production model whose output is the English responses in his data, each of which is triggered by a Japanese response which in turn is triggered by "S_m," a

"meaningful stimulus" identified with Osgood's general stimulus "S_1" (ibid, pp. 66-68). Unfortunately, Kleinjans escapes further detailed criticism since there is no pulling together of this unsupported claim with his impressive descriptive-contrastive data. Put another way, Kleinjans attempted to apply Osgood's particular paradigm as an afterthought and not as an integral part of his experimental planning. It seems to me that through this unfortunate experimental procedure Kleinjans did not realize one crucial flaw in the inapplicability of this design: it is quite impossible to find a control group which has "rested," i.e., has not learned a native language, while the experimental group learns task A (S_1 --> R_1) i.e., the native language. However, one should not dismiss lightly the difficult task which Kleinjans undertook, namely the attempt to do interdisciplinary work when each of the disciplines involved establishes and evaluates facts in different ways, a problem still with us.

To further complicate the issue, Boomer has pointed out (private conversation) that Ausubel (1963) describes a "transfer paradigm" which allows both the experimental group and the control group to learn task A. Ausubel's attempt is particularly attractive since he attacks the relevance of this same learning theory to a meaningful type of learning, but after prolonged consideration I decided that even Ausubel's improved version could not adequately handle the complex IL data under consideration here, and that experimentation of a different type, carefully sorting out the numerous variables influencing the phenomenon of language transfer, is required.

2.2 INTRODUCTION TO THE RESEARCH

It was accepted as a working assumption that transfer of the structural patterns of Hebrew into English occurs at all levels of the hierarchy that linguists might isolate. Examples of transfer occurring on three of these levels are as follows. (1) phonological: the Israeli commonly substitutes a voiced velar fricative for the English retroflex /r/; (2) syntactic: the Israeli commonly makes word order mistakes such as **I like very much cats**, which is thought to be attributable to the Hebrew pattern of the type **ani oheu meod xatulim**[2], and (3) semantic: the Israeli commonly produces the wrong word or lexical item whenever one Hebrew word covers the same semantic area as do two English words, e.g., **ezrax** 'citizen, civilian' and **lehazmin** 'order, invite.' (An Israeli student was overheard saying: **I shall order two girls for dinner.**)

It was decided that this particular research project could best handle transfer from Hebrew to English on only one of these linguistic levels; the syntactic level[3] was chosen. Two further types of syntactic juxtaposition were noted in the Israeli's English: **I bought downtown the postcard** and **I lived five years ago in Tel Aviv.** In order to account for--before experimentation--the observables noted, lists such as (1-3) below were prepared:

(1) Heb. **ani ohev meod / xatulim**
IL. **I like very much / cats**
Eng. **I like cats / very much**

(2) Heb. **garti lifney xameš šanim / betel aviv**
IL. **I lived five years ago / in Tel Aviv**
Eng. **I lived in Tel Aviv / five years ago**

(3) Heb. kaniti bair / et hagluya
IL. I bought downtown / the postcard
Eng. I bought the postcard / downtown

In this listing, "Heb." is the hypothesized Hebrew norm; all data of this form were checked with an Israeli linguist. The norm of the INTERLANGUAGE[4] i.e., the Israeli's attempted production of English, is symbolized as 'IL,' and the hypothesized English norm is symbolized as 'Eng.' Such hypothesized linguistic data then served as a corpus for descriptive statements. None of the available units of linguistic description, however, seemed to fit all the combined data of these three linguistic systems. A descriptive unit, the SYNTACTIC STRING, was then postulated, and a system of symbolization was set up to identify and separate syntactic strings occurring after the verb. In this chapter, relevant syntactic strings are set off in the sentence by italics, separated from each other by a single slanted line.

An example of a descriptive statement relevant to the present study is this: whenever a Hebrew **place string** (e.g. **bair** 'downtown') occurs in the same sentence with an **object string** (e.g., **et hagluya** 'the postcard') and, furthermore, both occur after the verb, the order is **place string-object string**, as in the Hebrew sentence of example (3). A comparable descriptive statement of English place and object strings is this: whenever an English **place string** (e.g., **downtown**) occurs in the same sentence with an **object string** (e.g., **the postcard**) and, furthermore, both occur after the verb, the order is **object string-place string**, as in the English sentence of example (3). A relevant contrastive statement is this: a speaker of Hebrew tends to transfer the distribution of Hebrew object and place strings to his production of English object and place strings. The permissible Hebrew structural order, **place string-object string**, is different from the English order, **object string-place string**, and is thus a result of transfer when produced in the Israeli's interlanguage behaviour, as in the interlanguage sentence of example (3).

Experimentation revealed that descriptive and contrastive statements such as those in the preceding paragraph were just not accurate in most cases, and not even predictive of one case: the effect of semantic considerations on syntactic string order. It should be pointed out, however, that these descriptive and contrastive statements were used to construct hypotheses which were then experimentally tested. This is still the important function of CA in language transfer research. See Gass and Selinker, 1983, Chapter 1. Experimentation yielded sentences--where "sentence" was judged in the traditional sense of subject followed by a predicate. These experimentally elicited sentences were analyzed[5] in the same way as the ones discussed above, that is, with the syntactic string as the minimal unit of syntactic description.

The reliability of the author's analysis of the experimental data in terms of syntactic strings was tested by having several other persons independently perform the same analysis. Four other analysts reproduced the author's results with an average scorer reliability of 97.4%. These linguistic coders marked a text with 170 sentences typed in orthographic English while listening to a specially prepared tape of these 170 English and interlanguage sentences obtained from American and Israeli school children under the experimental conditions described further on.[6] (These 170 sentences were representative of the total corpus of 4155 experimentally elicited sentences.) The following definitions were given to the analysts:

"Pl: a unit of one or more words which conveys a place meaning, e.g. there, at home, in Ramat Gan
Ti: a unit of one or more words which conveys a time meaning, e.g. now, last year, two years ago
Ad: only one of the following: best, the best, a little, very much
Ob: a unit of one or more words which is more or less the direct object of a verb in the traditional sense."

The twelve sentences presented in (4) through (15) are representative of the entire set of the 143 experimentally obtained sentences in which all five analysts agreed in every coding detail, i.e., identification, separation, and labeling of the syntactic strings.

(4) I see him / a year ago
Ob Ti

(5) I saw the movie / a couple of days ago
Ob Ti

(6) I saw him / in his apartment
Ob Pl

(7) I study in school / math science geography gym art
Pl Ob

(8) I like English and geography / best
Ob Ad

(9) I like best / Paul Anka Elvis Presley
Ad Ob

(10) I live in Forest Park Apartments / now
Pl Ti

(11) I lived five years ago / in Ramat Gan
Ti Pl

(12) the books are on the table
Pl

(13) yesterday I heard the Beatles
Ob

(14) you put the books / on the table / now
Ob Pl Ti

(15) I heard them / the last time / yesterday
Ob Ti

This list demonstrates the various types of sentences that were and were not counted in the statistical frequency analysis. Only the four countable strings to the right of the verb are identified: place string (Pl), time string (Ti), adverb string (Ad), and object string (Ob). Sentences (4) through (11) were counted, whereas (12) through (15) were not. Counted sentences consisted of a verb followed by any one of the four countable combinations:[7] Ob+Ti, (4) and (5); Ob+Pl, (6) and (7); Ob+Ad, (8) and (9); and Pl+Ti, (10) and (11). No other linguistic material was counted in the investigation. Sentences (12) and (13) were not counted, for example, because only one string follows

the verb. Sentences (14) and (15) were not counted because in each case three strings follow the verb. In addition, sentence (15) exhibits a string of a different type, which was not labeled by any of the analysts.

2.3 THE EXPERIMENTS

Seven experiments, involving 163 schoolchildren--132 in Israel and 31 in the United States--were conducted for the purpose of experimentally eliciting specific types of sentences, i.e., those with a verb followed by one of the countable combinations described above. A total of 4155 sentences were collected from the subjects (1711 in Hebrew by Israelis, 1542 in the interlanguage by Israelis, and 902 in English by Americans). Of the total, 1640 were counted (614, 687, and 339 respectively).

Experiment I, the basic experiment, attempted to test two hypotheses: (a) in the Israeli's production of Hebrew sentences, there will be a statistically significant trend toward one of the only two possible arrangements that can occur when two strings, i.e., one of the four combinations listed above, follow the verb; and (b) any significant trends discovered in the analysis of Hebrew sentences produced by Israelis will appear in an analysis of the interlanguage sentences produced by the same Israelis under the same experimental conditions. Nonchance arrangements identified in terms of hypothesis (a) will be defined as a Hebrew norm in each syntactic domain. Parallel nonchance arrangements identified in terms of hypothesis (b) will be defined as syntactic transfer.

Experiments II and III were conducted for the purpose of replicating the essential conditions of the basic experiment in two other schools by attempting to keep three major variables constant: place of birth, age, and language spoken at home. Such replications were undertaken in the belief that if the results of Experiment I were to be considered valid, these results should consistently be repeatable. In the course of Experiments IV, V, and VI one major variable was isolated in the design and purposely changed per experiment (see Section 3.2 below) so that the effect of this deliberate shift in variables upon the previously established results could be systematically studied. Experiment VII was conducted in the United States in order to establish an English norm of syntactic string behavior. The hypothesis in the case of Experiment VII was essentially that of hypothesis (a) above, and it was felt that if a statistically significant trend could be clearly established in each of the four combinations, it would then be possible to measure the Israeli's concurrences with and deviations from this experimentally established norm of English.

The experimental design also attempted to isolate and control other potentially relevant variables. In all experiments the role of the sex variable was tested; in Experiments I through VI the language proficiency variable was tested; and in Experiments I and III the I.Q. variable was tested.

2.3.1 Materials

Prior to Experiment I, an interview was prepared containing approximately fifty questions each in Hebrew and in English. The purpose of the interview was to achieve a similar framework in the two

languages which would serve the interviewer as a guide in his attempt to elicit countable sentences from the subjects. The interview questions were grouped around semantic areas within the subjects' range of experience and, one hoped, within their range of interest. Two types of questions were included; those questions specifically designed to elicit countable sentences were interspersed with questions whose function was to keep the conversation moving and to make certain that the important questions did not appear conspicuous. For Experiment VII, the interview used for the other experiments was revised; the questions of the new form were adjusted to conditions in the United States.

For the experiments conducted in Israel, a teacher's instruction sheet and questionnaire was prepared; the sheet described the instructions to be given to the class and the questionnaire requested background information on each subject. Four or five days before each experiment was conducted, the sheet was given to the English teacher of the particular class involved. The teacher filled in the questionnaire and returned it to the interviewer on the morning of the interview session.

2.3.2 Subjects (Ss)

Common characteristics of the 132 Ss (57 boys and 75 girls) used in the first six experiments are that they were all born in Israel and had never lived in an English-speaking country. A deliberate shift of one major variable in Experiment IV produced the following differences: Ss used in this experiment were fifteen years old, in the 10th grade, and had five years of English instruction, whereas Ss used in the other five experiments were thirteen-year-old 8th graders with three years of English instruction. A further deliberate shift in variables in Experiments V and VI accounted for differences among Ss regarding the language spoken at home. In the basic experiment and in its two replications, the home language was Hebrew; this variable was also kept constant in Experiment IV. In Experiment V, the Ss did not primarily speak Hebrew at home, but rather a wide variety of Middle Eastern languages, excluding Yemenite Arabic. The tapes gathered in this experiment were informally tested on several adult Israelis who all stated that the Hebrew of these nineteen subjects, though clearly native, constituted a different dialect (Sephardic) from the Hebrew of the Ss recorded during the course of the first four experiments. The major distinguishing feature, in the opinions of these adults, was of a phonetic sort in almost every case. Subjects of Experiment VI all spoke one language at home--Yemenite Arabic. For Experiment VII, 31 Maryland 8th graders (sixteen boys and fifteen girls) who spoke only English at home and had never lived in a foreign country were interviewed.

2.3.3 Procedure

Before the interview sessions of Experiments I-VI, the Ss of each experiment were divided without their knowledge into small groups by their English teacher on the basis of his/her estimate of their proficiency in English (high, mid, low), with each group being homogeneous as to sex. The resultant groups had from two to five Ss per group, the number depending upon the availability of Ss and upon teachers' assignments. Order was balanced in two ways: (a) Hebrew part first, English part first; and (b) male group, female group. Condition (a) was felt to be essential so that prompting in Hebrew

could not account for the interlanguage results, as might have been the case if the Hebrew part of the interview had always been presented to the Israeli Ss first. In order to cancel, over several experiments, the possible effect of boys' interlanguage sentences being prompted by Hebrew whereas girls' would not have been, balance as to order between each level's sexual division was obtained through the use of a table of random numbers.

For Experiment VII, unlike the interviews conducted in Israel, no division as to foreign language proficiency was contemplated, since the goal in this case was solely to establish a norm of English syntactic string behavior. Similar to the preceding experiments, the Ss were interviewed--when available--in small groups, each group being homogeneous as to sex.

All interviews were conducted in their entirety by the author, who has no trouble communicating in Hebrew, although a native speaker would have been more desirable for the Hebrew parts of I-VI. The interviewer's questions and the Ss' responses were recorded on a portable tape recorder with the tape recorder and the microphone in full view. The only instruction given to the Ss was to speak in complete sentences, and it took but a few seconds for most Ss to learn to speak in complete sentences, with an occasional subject having to be reminded. Thus, for those colleagues wishing to do SLA research where large numbers of a particular IL structures are desired, the experimental instruction "speak in a complete sentence" appears to be successful. This is an important methodological point, since the gathering of large numbers of a particular linguistic structure is impossible in normal discourse, given the nature of the beast.

2.3.4 Results

In this section four types of results are presented: those from the data of the three linguistic systems experimented with and that of the role played by potentially relevant nonlinguistic variables. For the sake of simplicity of presentation, the Hebrew results of the six experiments conducted in Israel are presented and described in pooled form as are the interlanguage results. Though considerations of space make it seem as if only one experiment is being reported in these two sections, the results of the pooled data are in essence no different from those of the six experiments, except in the one case reported. These pooled results then are considered all the more valid, since they in fact proved to be repeatable.

2.3.4.1 Hebrew Data

Several very significant trends[8] were discovered in a statistical analysis of the countable Hebrew sentences produced by the Israeli Ss in the pooled data of Experiments I-VI. As is apparent from the frequency counts (Table 1), two absolutes and one near-absolute appeared in the Hebrew data. Whenever an object string (Ob) and a time string (Ti) occurred after the verb, i.e., Ob+Ti, the order was object string--time string, i.e., Ob-Ti, in 178 occurrences, while only once did the order Ti-Ob occur. Sentences (16) and (17) are examples of this Ob-Ti norm:

(16) raite et ze / liʃney svuaim 'I saw it two weeks ago'

(17) raiti et haseret haze / liʃney svuaim 'I saw that movie two weeks ago'

The result establishing Ob-Ti as a norm of Hebrew, though it was nearly absolute, was completely unexpected by the author and by an Israeli linguist. It was felt before experimentation that the combination Ob+Ti would parallel the combination Ob+Pl where it was known that the order Pl-Ob often occurred in the Hebrew of Israelis.[9] Furthermore, it was soon apparent that another absolute would be established in the Hebrew data if in the analysis of the combination Ob+Pl, noun objects (Ob_n) were distinguished from substitute objects (Ob_s) and the frequencies for each tabulated separately. Table 1 shows that in the case of Heb. Ob_s +Pl the sequence Ob_s-Pl occurred every time, but when the frequencies for Ob_n+Pl were tabulated, no significant trend ($p<.10$) toward the unexpectedly dominant sequence, Ob_n-Pl could be established. Sentence (18) is an example Ob_n-Pl, (19) of Ob_n-Pl, and (20) of Pl-Ob_n.

TABLE 1

String Arrangement Frequencies

Combination	*Arrangement*	*Hebrew*		*Interlanguage*		*English*	
Ob+Ti	Ob-Ti	178	$p<.001$	194	$p<.001$	104	$p<.001$
	Ti-Ob	1		0		0	
Ob_n+Pl	Ob_n-Pl	77	$p<.001$	58	$p<.001$	34	$p<.001$
	Pl-Ob_n	0		0		0	
Ob_n+Pl	Ob_n-Pl	73	$p<.10$	85	$p<.20$	62	$p<.001$
	Pl-Ob_n	51		67		4	
Ob+Ad	Ob-Ad	25	$p<.001$	70	$p<.001$	98	$p<.001$
	Ad-Ob	131		143		0	
Pl+Ti	Pl-Ti	34	$p<.30$	24	$p<.01$	33	$p<.001$
	Ti-Pl	44		46		4	
Ob_n+X	Ob_n-X	164	$p<.001$	170	$p<.001$	76	$p<.001$
	X-Ob_n	0		0		0	

TABLE 2

Semantic Breakdown of Ob_n + Pl for Pooled Data

Responses concerning:		*Hebrew*	*Interlanguage*
(a) buying and receiving things	Ob_n-Pl	15	28
	Pl-Ob_n	1	0
(b) seeing movies and parades	Ob_n-Pl	25	14
	Pl-Ob_n	0	0
(c) books on the table	Ob_n-Pl	24	35
	Pl-Ob_n	0	0
(d) people brought home	Ob_n-Pl	6	1
	Pl-Ob_n	1	6
(e) seeing or visiting the doctor	Ob_n-Pl	2	4
	Pl-Ob_n	1	1
(f) meeting the teacher	Ob_n-Pl	0	2
	Pl-Ob_n	0	0
(g) subjects studied at school	Ob_n-Pl	1	1
	Pl-Ob_n	48	60

	Hebrew			*Interlanguage*		
	Ob_n-Pl	Pl-Ob_n		Ob_n-Pl	Pl-Ob_n	
Σ(a)(b)(c)	64	1	$p<.001$	77	0	$p<.001$
Σ(g)	1	48	$p<.001$	1	60	$p<.001$

(18) raiti et ze / bekolnoa orgil 'I saw it at the Orgil theater'

(19) kaniti et hasaon / baxanul 'I bought the watch in a store'

(20) ani roca lilmod bauniversita / biologia 'I want to study biology at the university'

In fact, Heb. Ob_n +Pl had proven exceedingly puzzling throughout the analysis, until the data for all six experiments were reexamined from an entirely different point of view. This new analysis began to reveal some promising trends. Table 2 shows a division of the pooled Hebrew and interlanguage Ob_n +Pl frequencies into seven categories, each category being determined by the semantic content of the Ss' responses.

In a reanalysis of the Hebrew data at the bottom of the table, categories (d)(e)(f) are ignored[10] and the pooled frequencies for categories (a)(b)(c) are totaled on the one hand, and those for (g) on the other; the resulting tabulations show that when the response concerned "subjects studied at school" (category g), an almost absolute trend toward the Hebrew order Pl-Ob_n occurred. But when the responses concerned any of the other three topics (categories a, b, or c), the near absolute trend was, on the other hand, toward the order Ob_n -Pl. Sentence (19) is an example of category (a); sentence (20), of category (g). Note that a new type of Hebrew norm is being described, i.e., one where both arrangements become established as the norm.

The next combination under study in Table 1, object string and adverb string (Ob+Ad), showed a highly significant trend ($p<.001$) toward the dominant arrangement Ad-Ob, though minimal grammatical pairs did occur with sentences of type (21) occurring with a much greater frequency of occurrence than those of type (22). It is important to note that in such a situation, probablistic controls are necessary to establish a norm.[11]

(21) ani ohev meod / sratim 'I like movies very much'

(22) ani ohev sratim / meod 'I like movies very much'

For the combination place string and time string (Pl+Ti), the frequencies of 34 and 44 fail to establish a significant trend ($p<.30$) toward either sequence. This result was unexpected as it ran counter to the hypothesis previously stated that a statistically significant trend would be discovered for each combination. It is interesting to note, however, that in the opinion of all native speakers asked, either order is possible, e.g. (23) or (24).

(23) ani gar began yehuda / axsav 'I live in Gan Yehudah now'

(24) ani gara axsav / beramat gan 'I (ʃ.) live in Ramat Gan now'

It seems reasonable to posit another new type of norm; the norm for Heb. Pl+Ti is not mandatorily one of two possible arrangements, but the choice of either arrangement since the possible sequences are more or less equiprobable.

Finally, splitting the data another way produced another absolute. The noun objects (Ob_n) were again separated from the substitute objects (Ob_s), but this time both Ob+Ti, e.g. (16), and Ob+Pl, e.g. (18), were included. No examples of a substitute object occurred in the same Hebrew sentence with an adverb string. The combination Ob_s +X was then said to equal the total occurrences of Ob_s+Ti and Ob_s +Pl. It was found that the order Ob_s-X occurred 164 times while the reverse order did not occur.

2.3.4.2 Interlanguage Data

The absolute and near-absolute norms established in the analysis of the Hebrew data reappeared in an analysis of the corresponding interlanguage data obtained from these same Israeli Ss in the same experiments. As is apparent from the frequencies listed in Table 1, no counterexamples occurred to the IL absolutes Ob-Ti, e.g. (25) and (26), and Ob_s-Pl, e.g. (27).

(25) I met Mrs. Cosman / today

(26) I met her / this morning

(27) I bought it / in Tel Aviv

A third interlanguage trend which was statistically parallel to a Hebrew norm occurred in the case of IL Ad-Ob, with both Hebrew and interlanguage significant at the <.001 level. As with Heb. Ob+Ad, minimal grammatical pairs such as (28) and (29) occurred in the interlanguage data, with the former type enjoying a much larger frequency of occurrence.

(28) I like very much / movies

(29) I like movies / very much

The new type of norm described for Heb. Ob_n+Pl is paralleled by those frequencies registered from a semantic division of IL Ob_n+Pl (Table 2). Once again, semantic categories (a)(b)(c) are totaled on the one hand, and (g) on the other; the resulting tabulations show an absolute trend toward Ob_n-Pl for categories (a)(b)(c) and a near-absolute trend toward Pl-Ob_n for category (g). Sentence (30) is an example near-example of category (a); sentence (31) of category (g).

(30) I bought my watch / in Tel Aviv

(31) I will study in the university / biology

For the reasons reported above, the fact that Heb. Pl+Ti showed no significant trend toward either possible arrangement was an unexpected result. In light of this, the significant trend that appeared in IL Pl+Ti toward Ti-Pl (Table 1) was likewise unexpected. But the significance here was at the <.01 level, which was not so conclusive a result as that reported for other dominant trends. It may just be that a dialect difference is at work here (see Section 3.44) because when the frequencies registered for Experiments V and VI were removed, the new interlanguage frequencies totaled 24 for Pl-Ti and 39 for Ti-Pl, a nonsignificant combination ($p<.10$). This last result is indeed credible since it parallels, though at a lower level, the nonsignificance ($p<.95$) created by the new Hebrew frequencies of 32 for Pl-Ti and 33 for Ti-Pl. The conclusion to be drawn is that, with the limiting assumption of a dialect difference, the choice of either arrangement, which was found to be the Heb. Pl+Ti norm, reappears in an analysis of the interlanguage sentences, e.g. (32) or (33), produced by the same Israelis whose sentences determined this Hebrew norm.

(32) I live in Tel Aviv / now

(33) I live now / in Tel Aviv

Finally, another absolute was created in the Israeli's interlanguage data when all object strings were divided into Ob_n and Ob_s; IL Ob_s -X occurred 170 times while the reverse order did not occur. Sentence (26) is an example of Ob_s-Ti, (27) of Ob_s-Pl, and (34) of Ob_s-Ad.

(34) I like it / very much

2.3.4.3 English Data

All trends discovered in a statistical frequency analysis of the countable sentences obtained in Experiment VII were highly significant. In fact, as is apparent from the frequency count in the right hand column of Table 1, no counterexamples occurred to the following absolutes: Ob-Ti, e.g. (35) and (36); Ob_s-Pl, e.g. (37); and Ob-Ad, e.g. (38) and (39).

(35) I met Sister Leon / last year

(36) I met her / at the beginning of last year

(37) I met her / in school

(38) I like movies / very much

(39) I like them / very much

Each is established as a norm of English syntactic string behaviour. Although the trend toward Ob -Pl was not absolute, it was nevertheless highly significant. It is interesting to note that all four examples of Pl-Ob , e.g. (40), belong to semantic category (g) described in the Hebrew and interlanguage data of the Israeli Ss, but so do some examples of Ob -Pl, e.g. (41).

(40) I study in school / math science geography gym art

(41) I study French / in school

Neither was it expected that the four counterexamples to the Pl-Ti dominant arrangement would occur. However, the trend toward Pl-Ti, e.g. (42), is in fact a highly significant one ($p<.001$) and this arrangement is accepted as the English norm for this particular combination.

(42) I lived in New York / five years ago

The four examples of Ti-Pl show no pattern, are tentatively regarded as chance occurrences, and will not be discussed further. Finally, splitting the data another way produced a fourth absolute and a sixth English norm, Ob -X, with 76 occurrences and no counterexamples. Sentence (36) is an example of Ob -Ti, (37) of Ob -Pl, and (39) of Ob -Ad.

2.3.4.4 Nonlinguistic Variables

In a reanalysis of the data of all seven experiments, it was concluded that sex is not a significant variable. In only one case was a significant trend discovered, IL Ob-Ad toward a female domination, but it was at the unconvincing level of <.05. This one case is regarded as a freakish sample obtained by chance.

Experiment IV was conducted for the sole purpose of measuring the effect of a deliberate variation in what might be called the "age-complex" variable, i.e., age, grade in school, and amount of English instruction. It was found that the two-year age difference involved in this experiment had no effect upon any of the results already reported.

Experiments V and VI were conducted for the sole purpose of measuring the effect of two deliberate variations of the variable labeled "language spoken at home." Only one difference in the results obtained in Experiment V from those of I-IV was discernible: both Heb. and IL. Ti-Pl had frequencies which dominated significantly. It may be possible that this dialect, unlike the other, offers no choice of arrangements to the speaker, or perhaps the explanation of this significant trend lies in the low frequencies obtained (Heb. Ti-Pl 9, Pl-Ti 1; IL. Ti-Pl 5; Pl-Ti 0). It is also possible that the same explanation of the Ti-Pl trends applies to the frequencies obtained in Experiment VI, but these are too low even for wild conjecture (2:1, 2:0 respectively).

There is one important result, however, to report in the case of Experiment VI; it was at this point that the theoretically plausible design broke down. The fundamental assumption behind the experimental design was that it would be possible in practice (a) to choose an available homogeneous group of subjects, (b) to perform a basic experiment with at least one replication, and finally (c) to change one major variable per consecutive experiment while holding all other major variables constant. As a result of Experiment VI it became clear that the grade in school variable had two distinct components--grade in school and level of education--and that a direct association could be established between level of education and language spoken at home. Crucially, this experiment as designed could not be performed fully in the real world and was not completed.

Language proficiency differences were measurable since each teacher divided his pupils into three levels of proficiency in English based on his estimate of their ability to perform in that foreign language. Of interest here was the extent to which the interlanguage responses at each proficiency level concurred with or deviated from the norm of English established above. The major difficulty in evaluating this variable concerned the equivalence of proficiency levels in the different schools, which could not be clearly determined. Thus no significant correlations were demonstrable.

An I.Q. measure was available for the two schools of Experiments I and III only. Since the Ss in both schools took the same battery of tests, which included achievement as well as reasoning, it is believed that the results are comparable. The measure isolatable in this study was the average percentile scores of the Ss on each proficiency level. The scores for Experiment I were: average high, 77th; mid, 71st; and low, 66th. Those for Experiment III were: average high, 82nd; mid, 72nd; and low, 65th. Note that in both experiments the average percentile scores of the proficiency groups ran from high to low; this is an interesting result since these scores parallel the teachers ratings.[13] Unfortunately, individual performance in each experiment was not isolatable because the experimental design used group interviews which, though efficient in many ways, did not allow for the assignment of particular responses to particular Ss. The present experiments could easily be replicated, with provisions for identifying individual performance. It would be quite interesting to find out something about homogeneity of IL forms made by a certain type of subject, for example.

2.3.5 Discussion

In the pooled data of Experiments I-VI, a significant Hebrew norm of syntactic string behavior was established in the following cases: Ob-Ti, Ob_s-Pl, Ad-Ob, and Ob_s-X. In each of these four cases, statistically significant parallel interlanguage trends were discovered. The conclusion to be drawn is that when parallel nonchance arrangements of this type result from the statistical operations performed, syntactic transfer is identified. For example, in the case of Heb. Ob+Ti, we can speak of the transfer of a particular Heb. arrangement (Ob-Ti) to an IL combination (Ob+Ti), with the resultant IL arrangement (Ob-Ti) being measured the same as the Hebrew one in every physical occurrence of the abstract combination. The same is true of Heb. Ob_s+Pl and Ob_s+X. The case is slightly different, however, for Heb. Ob+Ad, whose dominant arrangement, though highly significant, was far from being absolute. In this latter case, we can speak of the

transfer of a particular Heb. arrangement (Ad-Ob) to an IL combination (Ob+Ad), with the resultant IL arrangement (Ad-Ob) being measured the same as the dominant Hebrew one with a much greater than chance frequency of occurrence. Thus, SYNTACTIC TRANSFER in the circumstances described is operationally defined as a process which occurred whenever a statistically significant arrangement in the Israeli's Hebrew sentences reappeared in his interlanguage behavior, i.e., in his attempted production of English sentences.

The situation regarding syntactic transfer in the case of Ob_n +Pl proved to be the same after the semantic breakdown described in Sections 3.41 and 3.42 was carried out. The pooled frequencies shown at the bottom of Table 2 indicate that the interlanguage split is exactly the same as the Hebrew one: categories (a)(b)(c) on the one hand and (g) on the other. As far as Heb. Ob_n+Pl (categories a, b, and c) is concerned, the transfer is of a particular Heb. arrangement (Ob_n-Pl, categories a, b, and c) to an IL combination (Ob_n+Pl, categories a, b, c), with the resultant IL arrangement (Ob_n-Pl) being measured the same as the Hebrew one in every occurrence of the combination in the data. Note that the transfer of Heb. Ob_n+Pl (category g) is almost identical, but in reverse.

As regards Heb. Pl+Ti, no significant trend toward either of the two possible arrangements occurred in an analysis of the data of these six experiments, and the conclusion drawn was that the choice of either arrangement is the Hebrew norm. A nonsignificant Hebrew result was also obtained when the data of Experiments V and VI were omitted from consideration on the grounds that they reflected a potential dialect difference. This latter move did, however, change the interlanguage result from one of nonparallel significance to one of parallel nonsignificance. An extension of the criterion for the identification and measurement of syntactic transfer would in this case be parallel nonsignificance. The Israeli whose home language is Hebrew (dialect a) has a choice as regards Heb. Pl+Ti and he transfers this choice to the production of IL Pl+Ti; the resulting arrangement in the interlanguage is either Pl-Ti or Ti-Pl, with more or less equal probability of occurrence. The Israeli whose home language is something other than or something in addition to Hebrew (dialect b) seems to have no choice. His dominant Hebrew arrangement is Ti-Pl and he transfers this arrangement to his attempted production of English sentences.

The results of Experiments I through VI, then, appear to have generally upheld the two hypotheses outlined in Section 2. There it was stated that four combinations would be studied: Ob+Ti, Ob+Pl, Ob+Ad, and Pl+Ti. It turned out that through pooling the data, and subdividing and rearranging them, eight cases were isolated: Ob+Ti, Ob_s +Pl, Ob+Ad, Ob_s+X, Ob_n+Pl (categories a, b, and c), (Ob_n+Pl (category g), Pl+Ti (dialect a), and Pl+Ti (dialect b). In seven of these eight cases, it was possible to establish a statistically significant trend in the Hebrew data toward one of the two possible arrangements per combination: Ob-Ti, Ob_s-Pl, Ad-Ob, Ob_s-X, Ob_n-Pl (categories a, b, and c), Pl-Ob_n (category g), and Ti-Pl (dialect b). Most important, the hypothesis that significant trends discovered in an analysis of the Hebrew data would reappear in an analysis of the interlanguage data was strongly supported by the fact that such was indeed the case in the pooled data of these seven arrangements. Furthermore, the one example Pl+Ti (dialect a), of consistent nonsignificant frequency distributions in the Hebrew data--a result not predicted--consistently produced parallel nonsignificant interlanguage distributions. These seven parallel significant trends and the one parallel nonsignificant trend

were what permitted an operational definition of syntactic transfer in each of the eight cases.

2.3.6 Contrastive Study

We have seen that of eight syntactic combinations tested, seven specific interlanguage arrangements produced by Israeli Ss were transferred from their native language, Hebrew. And in the eighth case, it was a choice of arrangements that was transferred. We now contrast these eight cases with the experimentally established norm of English, i.e., the six arrangements described in Section 3.43 above. First of all, though, it is necessary to clarify two concepts: "non-error" and "error."

All syntactic combinations countable in this study (1640) consisted of two strings; these strings might be considered as two elements, say a and b. In any physical occurrence of the abstract combination, a+b, the only possible arrangement that the S could produce would be of a form a-b or b-a. Each one of the six English norms was of the form a-b, and what will be measured in this section is simply the Israeli's concurrencès with and deviations from this a-b norm. Consequently, a NONERROR is taken to mean those occasions when the Israeli's interlanguage string behavior was of the form a-b; an ERROR is taken to mean those occasions when the Israeli's interlanguage string behavior was of the form b-a. For example, IL Ob-Ti, as in (25), being of the same form as the English norm is a nonerror. An example of an error is IL Ad-Ob, e.g. (28), which deviates from the English Ob-Ad norm.

In Table 3, the eight interlanguage syntactic combinations are shown in terms of the arrangements transferred from Hebrew; these arrangements are contrasted with the six arrangements, of the form a-b, established as norms of English. Numbers 1 through 6 in the table apply to all Israelis interviewed in the first six experiments while numbers 7 and 8 apply respectively to the two groups of Hebrew speakers isolated above and labeled dialects (a) and (b). These consistent concurrences with and deviations from an English norm made by the Israeli in his attempt to produce English sentences make it possible to identify three types of syntactic transfer: POSITIVE SYNTACTIC TRANSFER, i.e., when the Israeli's interlanguage string arrangements were nonerrors; NEGATIVE SYNTACTIC TRANSFER, i.e., when the Israeli's interlanguage string arrangements were errors; and NEUTRAL SYNTACTIC TRANSFER, i.e., when the Israeli's interlanguage string arrangements were either nonerrors or errors, neither dominating significantly. Here it may be asserted that those speakers belonging to dialect (a) showed three types of syntactic transfer in their speech behavior: positive, negative, and neutral; those speakers belonging to dialect (b) showed only two types: positive and negative. An important caveat to this view is presented in the next section.

TABLE 3

Contrastive String Arrangements

Norm of Interlanguage	*Norm of English*	*Error classification*	*Transfer classification*
1. Ob-Ti	Ob-Ti	Nonerror	Positive
2. Ob_s-Pl	Ob_s-Pl	Nonerror	Positive
3. Ob_s-X	Ob_s-X	Nonerror	Positive
4. Ob_a-Pl (categories a, b, c)	Ob_a-Pl	Nonerror	Positive
5. Ad-Ob	Ob-Ad	Error	Negative
6. Pl-Ob_a (category g)	Ob_a-Pl	Error	Negative
7. Ti-Pl (dialect b)	Pl-Ti	Error	Negative
8. Pl-Ti (dialect a)	Pl-Ti	Nonerror	Neutral
Ti-Pl (dialect a)	Pl-Ti	Error	

2.4 LANGUAGE TRANSFER

In the preceding sections, the phenomenon of language transfer was considered from a narrow point of view, i.e., the operational definition and the conclusions drawn were presented solely in terms of linguistic entities transferred on the syntactic level by the Israeli from his Hebrew to his interlanguage behavior. In this section an attempt will be made to provide an operational definition of language transfer in terms of any native and foreign language situation, no matter what linguistic level is identified and isolated. A preliminary step in this regard is for the descriptive analyst to judge that he is facing a situation in which only two alternate choices exist for the speaker in each of the two languages. The analyst is thus working within what might be called a "two-choice schema." The intention here is to convey the notion that in a two-choice schema the speaker in each physical occurrence of abstracted linguistic structures is forced to choose--at some unspecified level of consciousness--either structure (1) or structure (2), e.g., either (1) syntactic arrangement a-b or (2) syntactic arrangement b-a; either (1) phonetic voicing or (2) unvoicing; either (1) insertion of a support vowel between a two-member cluster or (2) voicing both members of the cluster, etc. Whenever there are such binary choices, LANGUAGE TRANSFER may be operationally defined as a process occurring from the native to the foreign language if frequency analysis shows that a statistically significant trend in the speaker's native language appears toward one of these two alternatives, which is then paralleled by a significant trend toward the same alternative[14] in the speaker's interlanguage behaviour, i.e., in his attempted production of the foreign language sentences, phonetic features, phonetic sequences, etc.

Whenever a significant trend fails to appear toward either of the two alternatives in the native language, language transfer is then to be identified as parallel nonsignificance in an analysis of the attempted production of a foreign norm. Language transfer does not occur in these two cases: nonsignificance in the native language, but significance in the interlanguage; and significance in the native language, but nonsignificance in the interlanguage. If either of these two results were to appear, there certainly would be many plausible

explanations available. The first case did appear, for example, when the Israeli's nonsignificant Heb. P1+Ti results were compared with his significant IL P1+Ti results. The hypothesis that a dialect difference was at work was then tested, i.e., both Hebrew and interlanguage frequencies for dialect (b) were removed, and it was then found that parallel nonsignificance was the case. Other explanations might have been: failure to account for other significant variables, incorrect judgement by the analyst as to what the speaker identified as same, inadequate definition of linguistic entities or of their boundaries, experimental procedure giving clues as to the responses desired, and so on.

What types of language transfer may be presumed to exist in any situation of native and foreign language contact? Rather, what types may be presumed to exist if concern is limited to accounting for transfer of linguistic entities from the native language to attempted production of a foreign norm, whenever two choices are open to the speaker in each physical occurrence of such abstracted entities? In light of the evidence put forward in this paper, it is predicted that each situation thus limited in scope will produce language transfer of one of three kinds:

POSITIVE LANGUAGE TRANSFER is identified as a process which occurs whenever there is a statistically significant predominance in the native language of one of two alternative linguistic entities, which is then paralleled by such predominance in an analysis of the attempted production of a foreign language, the predominant entity being a nonerror since it concurs with an experimentally established norm of that foreign language.

NEGATIVE LANGUAGE TRANSFER is identified as a process which occurs whenever there is a statistically significant predominance in the native language of one of two alternative linguistic entities, which is then paralleled by such predominance in an analysis of the attempted production of a foreign language, the predominant entity being an error since it deviates from an experimentally established norm of that foreign language.

NEUTRAL LANGUAGE TRANSFER is identified as a process which occurs whenever there is no statistically significant predominance in the native language of either of two alternative linguistic entities, which is then paralleled by a lack of predominance in an analysis of the attempted production of a foreign language, one alternative linguistic entity being a nonerror since it concurs with an experimentally established norm of that foreign language and the other being an error since it deviates from that norm.

A caveat is in order here, however. Gass and Selinker (1983, Chapter 1) point out that it is now recognized that this type of taxonomy may confuse process and product in SLA, the "process", in this case, being the learner's use of prior linguistic [here, NL] knowledge, in his/her interaction with TL input. A more current view is that when compared to the TL norm, whether obtained empirically or not, the IL product may exhibit positive/negative/neutral transfer. However, if one regards as still having merit Corder's (1967) view that the making of errors is a learning strategy (as in some cases I do), then the learner-internal status of this type of taxonomy cannot be completely dismissed. If the internal processes of IL learning are in fact being tapped to some degree by this type of taxonomy, then it is still worthwhile to ask: Which type of language transfer should be expected to

occur most frequently? In the present investigation, positive language transfer occurred four times, negative three times, and neutral once in the eight syntactic cases isolated (see Table 3). It seems reasonable to predict that positive or negative language transfer will occur more frequently than neutral because of the rigid constraints which operate in linguistic codes permitting communication and the not too difficult process of abstracting structures. In general, negative language transfer should be easiest for the analyst to identify since past concern has been primarily on problems in language learning and on interference phenomena in contrastive and bilingual studies. However, what was assumed to be negative may--after experimentation--turn out to be neutral in nature.

III. INTERLANGUAGE*

3.1 INTRODUCTION

This chapter discusses some conceptual preliminaries for those concerned with understanding the language forms that learners of a second language (L2) produce in attempting to express or negotiate meanings in contact with speakers of the L2. These preliminaries are important because without them, it is virtually impossible to decide what data are relevant to a theory of second language acquisition (SLA), either dependent upon or independent of pedagogical principles.

First of all, it is important to distinguish between a teaching perspective and a learning one. As regards the teaching perspective, one might very well write a methodology paper which would relate desired output to known inputs in a principled way, prescribing what has to be done by the teacher in order to help the learner achieve learning. As regards the learning perspective, one might very well write a paper describing the process of attempted learning of a second language, successful or not: teaching, textbooks, and other external aids would constitute one, but only one, important set of relevant variables. In distinguishing the two perspectives claims about the internal structures and processes of the learning organism take on a very secondary character in the teaching perspective; such claims may not even be desirable here. But such claims do provide the raison d'etre for viewing second language learning from the learning perspective. This paper is written from the learning perspective regardless of one's failure or success in the attempted learning of a second language.

In the learning perspective, what would constitute the relevant data of second language learning?[15] My own position is that such data would be those behavioral events which would lead to an understanding of the psycholinguistic structures and processes underlying attempted meaningful performance in a second language. The term **meaningful performance situation** will be used here to refer to the situation where an adult[16] attempts to express or negotiate meanings which he may already have, in a language which he is in the process of learning. Since performance of drills in a second language classroom is, by definition, not meaningful performance, it follows that from a learning perspective such performance is, in the long run, of minor interest. Also, behavior which occurs in experiments using nonsense syllables fits into the same category and for the same reason. Thus, data resulting from these latter behavioral situations are of doubtful relevancy to meaningful performance situations, and thus to a theory of second language learning.

It has long seemed to me that one of our greatest difficulties in establishing a theory of second language learning which is relevant to the way people actually learn second languages has been our inability to identify unambiguously the phenomena we wish to study. Out of the great conglomeration of second language behavioral events, what criteria and constructs should be used to establish the class of those events which are to count as relevant in theory construction?

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One set of these behavioral events which has elicited considerable interest is the regular reappearance in second language performance of linguistic phenomena which were thought to be eradicated in the performance of the learner. A correct understanding of this phenomenon leads to the postulation of certain theoretical constructs, many of which have been set up to deal with other problems in the field. But they also help clarify the phenomenon under discussion. These constructs, in turn, give us a framework within which we can begin to isolate the psychologically relevant data of second language learning. The new perspective which an examination of this phenomenon gives us is thus very helpful both in an identification of relevant data and in the formulation of a reasonable theory of second language learning.

3.2 INTERLANGUAGE AND LATENT STRUCTURES

Relevant behavioral events in SLA should be made identifiable with the aid of theoretical constructs which assume the major features of the psychological structure of an adult whenever s/he attempts to understand second language sentences or to produce them. If, in a theory of second language learning, our goal is explanation of some important aspects of this psychological structure, then it seems to me that we are concerned in large part with how bilinguals make what Weinreich (1953, p. 7) has called "interlingual identifications." In his book **Languages in Contact**, Weinreich discusses--though briefly--the practical need for assuming in studies of bilingualism that such identifications as that of a phoneme in two languages, or that of a grammatical relationship in two languages, or that of a semantic feature in two languages have been made by the individual in question in a language contact situation. Although Weinreich takes up many linguistic and some psychological questions, he leaves completely open questions regarding the psychological structure within which we assume "interlingual identifications" exist; we assume that there is such a psychological structure and that it is latent in the brain activated when one attempts to learn a second language. [Selinker (forthcoming, Chapter 2) develops in some detail an argument for "interlingual identifications" being a basic, if not the basic, SLA strategy.]

The closest thing in the literature to the concept **latent psychological structure** is the concept of **latent language structure** (Lenneberg, 1967, especially pp. 374-79) which, according to Lenneberg, (a) is an already formulated arrangement in the brain, (b) is the biological counterpart to universal grammar, and (c) is transformed by the infant into the **realized structure** of a particular grammar in accordance with certain maturational stages. For the purposes of this argument, I will assume the existence of something like the latent language structure described by Lenneberg: I shall further assume that there exists in the brain an already formulated arrangement which for most people is different from and exists in addition to Lenneberg's latent language structure. It is important to state that with the latent structure described in this paper as compared to Lenneberg's, there is no genetic time table;[17] there is no direct counterpart to any grammatical concept such as universal grammar; there is no guarantee that this latent structure will be activated at all; there is no guarantee that the latent structure will be realized into the actual structure of any natural language (i.e., there is no guarantee that attempted learning will prove successful), and there is every possibility that an overlapping exists between this latent language acquisition structure and other intellectual structures. [For further development of this point, see Felix (1985) and Bley-Vroman, (In Press).]

The crucial assumption we are making here is that those adults who succeed in learning a second language so that they achieve native speaker competence have somehow reactivated the latent language structure which Lenneberg describes. This absolute success in a second language affects, as we know from observation, a small percentage of learners--perhaps a mere five percent. It follows from this assumption that this five percent go through very different psycholinguistic processes than do most second language learners and that these successful learners may be safely ignored--in a counterfactual sense[18] --for the purposes of establishing the constructs which point to the psychologically relevant data pertinent to most second language learners. Regarding the study of the latter group of learners (i.e., the vast majority of second language learners who fail to achieve native speaker competence), the notion of attempted learning is independent of and logically prior to the notion of successful learning. In this paper, we will focus on attempted learning by this group of learners, successful or not, and will assume that they activate a different, though still genetically determined structure (referred to here as the latent psychological structure) whenever they attempt to produce a sentence in the second language, that is whenever they attempt to express meanings which they may already have, in a language which they are in the process of learning.

This series of assumptions must be made, I think, because the second language learner who actually achieves native speaker competence if any do, cannot possibly have been taught this competence since linguists are daily--in almost every study--discovering new and fundamental facts about particular languages. Totally successful learners, to achieve this native speaker competence must have acquired these facts (and most probably important principles of language organization) without having explicitly been taught them.[19]

Regarding the second language learner who will not succeed (in the absolute sense described above) and who is thus representative of the vast majority of second language learners, we can idealize that from the beginning of his study of a second language, he has his attention focused upon one norm of the language whose sentences he is attempting to produce. With this statement, we have idealized the picture we wish to sketch in the following ways:[20] the generally accepted notion target language (TL), i.e., the second language the learner is attempting to learn, is here restricted to mean that there is only one norm of one dialect within the interlingual focus of attention of the learner. Furthermore, we focus our analytical attention upon interlanguage (IL) data, i.e. the utterances which are produced when the learner attempts to say sentences of a TL. This set of utterances for most learners of a second language is not identical to the hypothesized corresponding set of utterances which would have been produced by a native speaker of the TL had he attempted to express the same meaning as the learner. Since we can observe that these two sets of utterances are not identical, then in the making of constructs relevant to a theory of second-language learning, one would be completely justified in hypothesizing perhaps even compelled to hypothesize, the existence of a separate linguistic system[21] based on the observable output which results from a learner's attempted production of a TL norm. This linguistic system we will call interlanguage (IL).[22] One of the main points of this chapter is the assumption that predictions of behavioral events in a theory of SLA should be primarily concerned with the linguistic shapes of the utterances produced in ILs. Successful predictions of such behavioral events in meaningful performance situations will add credence to the theoretical constructs

related to the latent psychological structure discussed in this chapter.

It follows from the above that a major sort of observable data from meaningful performance situations we can establish as relevant to interlingual identifications are: (1) utterances in the learner's native language (NL) produced by the learner; (2) IL utterances produced by the learner; and (3) TL utterances produced by native speakers of that TL. These three sets of utterances or behavioral events are, then, in this framework the psychologically relevant data of second language learning, and theoretical predictions in a relevant psychology of second language learning will be the surface structures of IL sentences.

By setting up these three sets of utterances within one theoretical framework, and by gathering as data utterances related to specific linguistic structures in each of these three systems, (under the same empirical conditions, if possible) the investigator in SLA can begin to study the processes which establish the knowledge which underlies IL behavior. I would like to suggest that there are five central processes (and perhaps some additional minor ones), and that they exist in the latent psychological structure referred to above. I consider the following to be processes and strategies important to SLA: first, language transfer; second, transfer of training; third, (strategies of second language learning; fourth, strategies of second language communication; and fifth, overgeneralization of TL linguistic material. Each of the analyst's predictions as to the shape of IL utterances will be associated with one or more of these, or other, processes and strategies.

3.3 FOSSILIZATION

Before briefly describing these processes and strategies, another notion I wish to introduce for the reader's consideration is the concept of fossilization, a mechanism which is assumed also to exist in the latent psychological structure described above. Fossilizable linguistic phenomena are linguistic items, rules, and subsystems which speakers of a particular NL will tend to keep in their IL relative to a particular TL, no matter what the age of the learner or amount of explanation and instruction he receives in the TL.[23] I have in mind such fossilizable structures as the well-known "errors": French uvular /r/ in their English IL. American English retroflex /r/ in their French IL, English rhythm in the IL relative to Spanish, German time-place order after the verb in the English IL of German speakers, and so on. I also have in mind less well known "non-errors" such as Spanish monophthong vowels in the IL of Spanish speakers relative to Hebrew, and Hebrew object-time surface order after the verb in the IL of Hebrew speakers relative to English. Finally, there are fossilizable structures that are much harder to classify such as some features of the Thai tone system in the IL of Thai speakers relative to English. It is important to note that fossilizable structures tend to remain as potential performance, reemerging[24] in the productive performance of an IL even when seemingly eradicated. Many of these phenomena reappear in IL performance when the learner's attention is focused upon new and difficult intellectual subject matter or when he is in a state of anxiety or other excitement, and strangely enough, sometimes when he is in a state of extreme relaxation. Note that the claim is made here that whatever the cause, the well-observed phenomenon of backsliding by second language learners from a TL norm is not, as has been generally

believed either random or toward the speaker's NL but toward an IL norm.[25]

A crucial fact perhaps the most crucial fact which any adequate theory of second language learning will have to explain is this regular reappearance or reemergence in IL productive performance of linguistic structures which were thought to be eradicated. This behavioral reappearance is what has led me to postulate the reality of fossilization and ILs. It should be made clear that the reappearance of such behavior is not limited to the phonetic level. For example, some of the subtlest input information that a learner of a second language has to master regards subcategorization notions of verbal complementation. Indian English as an IL with regard to English seems to fossilize the **that** complement or V **that** construction for all verbs that take sentential complements. Even when the correct form has been learned by the Indian speaker of English, this type of knowledge is the first he seems to lose when his attention is diverted to new intellectual subject matter or when he has not spoken the TL for even a short time. Under conditions such as these, there is a regular reappearance of the **that** complement in IL performance for all sentential complements.

3.4 FIVE IMPORTANT PROCESSES AND STRATEGIES

It is my contention that some of the most interesting phenomena in IL performance are those items, rules, and subsystems which are fossilizable in terms of the five processes and strategies listed above. [For the purposes of this discussion, the notions "process/strategy" will not be differentiated.] If it can be empirically demonstrated that fossilizable items, rules, and subsystems which occur in IL performance are a result of the NL, then we are dealing with the process of **language transfer**; if these fossilizable items, rules, and subsystems are a result of identifiable items in training procedures, then we are dealing with the process known as the **transfer of training**; if they are a result of an identifiable approach by the learner to the material to be learned, then we are dealing with **strategies of second language learning**; if they are a result of an identifiable approach by the learner to communication with native speakers of the TL, then we are dealing with **strategies of second language communication**; and, finally, if they are a result of a clear overgeneralization of TL rules and semantic features, then we are dealing with the **overgeneralization of TL linguistic material**. I would like to hypothesize that these five processes are processes which are **central** to second language learning, and that each process forces fossilizable material upon surface IL utterances, controlling to a very large extent the surface structures of these utterances.

Combinations of these processes produce what we might term entirely fossilized IL competences. Coulter (1968) presents convincing data to demonstrate not only language transfer but also a strategy of communication common to many second language learners. This strategy of communication dictates to them, internally as it were, that they know enough of the TL in order to communicate. And they stop learning.[26] Whether they stop learning entirely or go on to learn in a minor way, e.g., adding vocabulary as experience demands [Jain (1969 and 1974) insists they must] is, it seems to me, a moot point. If these individuals do not also learn the syntactic information that goes with lexical items, then adding a few new lexical items, say on space travel, is, I would argue, of little consequence. The important thing

to note with regard to the evidence presented in Coulter (1968) and Jain (1969 and 1974) is that not only can entire IL competences be fossilized in individual learners performing in their own interlingual situation[27] but also in whole groups of individuals, resulting in the emergence of a new dialect (here Indian English) where fossilized IL competences may be the normal situation.

We will now provide examples of these processes. The examples presented in the last section are almost certainly the result of the process of language transfer. A few examples relating to the other processes should suffice for this paper.

Overgeneralization of TL rules is a phenomenon well-known to language teachers. Speakers of many languages could produce a sentence of the following kind in their English IL:

1. What did he intended to say?[28]

where the past tense morpheme -ed is extended to an environment in which, to the learner, it could logically apply, but just does not. The Indian speaker of English who produces the collocation drive a bicycle in his IL performance, as in 2:

2. After thinking little I decided to start on the bicycle as slowly as I could as it was not possible to drive fast.

is most probably overgeneralizing the use of drive to all vehicles (Jain, 1969, pp. 22 and 24; but see note 36 here). Most learners of English quickly learn the English rule of contraction which forms things like the concert's from the concert is, but then these learners may overgeneralize this rule to produce sentences like:

3. Max is happier than Sam's these days.

in their English IL. Though this sentence is hypothetical, it illustrates an earlier point. The learner of English who produces contractions correctly in all environments must have learned the following constraint without explanation and instruction since this constraint was discovered only recently: "contraction of auxiliaries ... cannot occur when a constituent immediately following the auxiliary to be contracted has been deleted." e.g., happy in (3) (Lakoff, 1971). Dozens of examples of overgeneralization of TL rules are provided in Richards (1970).

The transfer of training is a process which is quite different from language transfer (see Selinker, 1969) and from overgeneralization of TL rules. It underlies the source of a difficulty which Serbo-Croatian speakers at all levels of English proficiency regularly have with the he/she distinction, producing in their English IL he on almost every occasion wherever he or she would be called for according to any norm of English. There is no language transfer effect here since, with regard to animateness, the distinction between he and she is the same in Serbo-Croation as it is in English.[29] According to a standard contrastive analysis then there should be no trouble. It seems to be the case that the resultant IL form, in the first instance, is due directly to the transfer of training: textbooks and teachers in this interlingual situation almost always present drills with he and never with she. The extent of this fossilization can be seen with respect to speakers of this IL over the age of eighteen who even though

they are consciously aware of the distinction and of their recurrent error, in fact, regularly produce **he** for both **he** and **she**, stating that they feel they do not need to make this distinction in order to communicate.[30] In this case, then, the fossilizable IL form is due originally to a type of transfer of training and later to a particular strategy of second language communication.

Concerning the notion **strategy** little is known in psychology about what constitutes a strategy; and a viable definition of it does not seem possible at present. Even less is known about strategies which learners of a second language use in their attempt to master a TL and express meanings in it. It has been pointed out[31] that learner strategies are probably culture bound to some extent. For example, in many traditional cultures, chanting is used as a learning device, clearly relating to what is learned in these situations. Crucially, it has been argued[32] that strategies for handling TL material evolve whenever the learner realizes either consciously or subconsciously, that s/he has no linguistic competence with regard to some aspect of the TL. It cannot be doubted that various internal strategies[33] on the part of the second language learner affect to a large extent the surface structures of sentences underlying IL utterances. But exactly what these strategies might be and how they might work is far from settled and is a matter for much current research and speculation. [For a useful summary, see Faerch and Kasper, 1983 and Kellerman et.al., 1985].

One example of a strategy of second language learning that is wide-spread in many interlingual situations is a tendency on the part of learners to reduce the TL to a simpler system. According to Jain (1969, pp. 3 and 4), the results of this strategy are manifested at all levels of syntax in the IL of Indian speakers of English. For example, if the learner has adopted the strategy that all verbs are either transitive or intransitive, he may produce IL forms such as:

4. I am feeling thirsty. or
5. Don't worry, I'm hearing him.

and in producing them seems to have adopted the further strategy that the realization of the category **aspect** in its progressive form on the surface is always with **-ing** marking (for further discussion, see Jain, 1969, 3ff.) It seems to me that a learner decision of this sort can be rightly called "simplification" and some of the arguments against simplification as a learner strategy have not entirely proven convincing. [See Selinker, 1984 for further comment.]

Coulter (1968) reports systematic forms occurring in the English IL performance of two elderly Russian speakers of English, due to another strategy which seems also to be widespread in many interlingal situations: a tendency on the part of second language learners to avoid grammatical formatives such as articles (6), plural forms (7), and past tense forms (8):

6. It was Ø nice, nice trailer. Ø big one. (Coulter, 1968, p. 22)
7. I have many hundred **carpenter** my own. (Coulter, 1968, p. 29)
8. I was in Frankfort when I **fill** application. (Coulter, 1968, p. 36)

This tendency could be the result of a learning strategy of simplification, but Coulter (1968, p. 7 ff.) attributes it to a communication strategy due to the past experience of the speaker which has shown him that if he thinks about grammatical processes while attempting to express in English meanings which he already has, then his speech will be hesitant and disconnected, leading native speakers to be impatient with him. Also, Coulter claims that this strategy of second language communication seemed to dictate to these speakers that form such as the English plural "was not necessary for the kind of communicating they used" (Coulter, 1968: 30). The Coulter work is a classic in the overlapping perspectives of IL and error analysis (EA) and it is a pity it has been neglected.

Not all of these strategies, it must be pointed out, are conscious. A subconscious strategy of second language learning called **cue-copying** has been experimented with by Crothers and Suppes (1967, p. 211) on Americans learning Russian morphological concepts. This **copy the cue** strategy is most probably due to what they call **probability matching**, where the chance that the learner will select an alternative morphological ending related to the cue noun is not random. Crothers and Suppes do not provide examples of the result of this strategy in meaningful performance situations; an example would be the r at the end of words like **California** and **saw** which foreign students of English who have had teachers from the Boston area regularly reproduce in their English IL.

To conclude this section, it should be pointed out that beyond the five so-called central processes, there exist many other processes which account to some degree for the surface form of IL utterances. One might mention spelling pronunciations, e.g., speakers of many languages pronounce final **-er** on English words as [ɛ] plus some form of r; cognate pronunciation, e.g. English **athlete** pronounced as [atlit] by many French-men whether or not they can produce [θ] in other English words[34] holo-phrase learning (Jain, 1969), e.g., for **half-an-hour** the Indian learner of English may produce **one and half-an-hour**; hypercorrection. e.g., the Israeli who in attempting to get rid of his uvular fricative for English retroflex [r] produces [w] before front vowels, "a vocalization too far forward"[35] and most assuredly others such long exposure to signs and headlines which according to Jain (1969) affect by themselves the shape of English IL utterances of Indians, or at least reinforce more important processes such as language transfer.

3.5 PROBLEMS WITH THIS PERSPECTIVE

There are certainly many questions one might wish to ask regarding the perspective presented so far; I shall attempt to deal with five. The reader should bear in mind that we are here calling for the discovery, description and empirical testing of fossilizable items, rules and subsystems in interlanguages and the relating of these to the above-mentioned processes--especially to the central ones. What seems to be most promising for study is the observation concerning fossilization. Many IL linguistic structures are **never** really eradicated for most second language learners; manifestations of these structures regularly reappear in IL productive performance, especially under conditions of anxiety, shifting attention, and second language performance on subject matter which is new to the learner. It is this observation which allows us to claim that these psycholinguistic structures, even when seemingly eradicated are still somehow present in the brain

stored by a fossilization mechanism (primarily through one of these five processes) in an IL. We further hypothesize that interlingual identifications, uniting the three linguistic systems (NL, IL, and TL) psychologically are activated in a latent psychological structure whenever an individual attempts to produce TL sentences.

The first problem we wish to deal with is: can we always unambiguously identify which of these processes our observable data is to be attributable to? Most probably not. It has been frequently pointed out that this situation is quite common in psychology. In studies on memory, for example, one often does not know whether one is in fact studying storage or retrieval. In our case, we may not know whether a particular constituent IL concatenation is a result of language transfer or of transfer of training or, perhaps, of both.[36] But this limitation need not deter us even if we cannot always sort things out absolutely. By applying the constructs suggested in this paper, I believe that relevant data can be found in the very many second language learning situations around us.

The second problem is: how can we systematize the notion fossilization so that from the basis of theoretical constructs, we can predict which items in which interlingual situations will be fossilized? To illustrate the difficulty of attempting to answer this question, note in the following example the nonreversibility of fossilization effects for no apparent reason. According to a contrastive analysis, Spanish speakers should have no difficulty with the he/she distinction in English, nor should English speakers have any difficulty with the corresponding distinction in Spanish. The facts are quite different, however: Spanish speakers do, indeed, regularly have trouble with this distinction, while the reverse does not seem to occur with English learners of Spanish.[37] Unlike the Serbo-Croatin example mentioned above, in this case there is no clear-cut explanation why Spanish speakers have trouble and English speakers do not. In cases such as these, it may turn out that one process, e.g., language transfer or transfer of training, overrides other considerations, but the stating of the governing conditions may prove very difficult indeed. ["Reversibility" has also been called "bi-directionality" and is discussed in Gass and Selinker, 1983, Chapter 1 and Afterword.]

In principle, one feels forced to agree with Stephanie Harries (personal communication) who claims that until a theory of second language learning can answer questions like: "How do I recognize fossilizable structures in advance?" or "Why do some things fossilize and others do not?", all experiments conducted within the framework provided in this paper must be regarded as exploratory in nature. (To put things in more familiar jargon: with regard to fossilization, our results are descriptive and not explanatory in nature.) But this task of prediction may prove to be impossible: certainly as Fred Lukoff points out (personal communication) this task, on the face of it, may be even tougher than trying to predict errors in second language performance--a task notably lacking in success. So, we may have to continue to live with some uncertainty and indeterminancy.

The major justification one has for writing about the construct fossilization at this stage of knowledge is that descriptive knowledge about ILs which turns out to suggest predictions verifiable in meaningful performance situations leads the way to a systematic collection of the relevant data: this task, one which is impossible without this construct, is expected to be relevant to serious theory construction in SLA.

The third problem to be treated here concerns the apparent difficulty of fitting the following type of question into the perspective I have been sketching: how does a second language learning novice become able to produce IL utterances whose surface constituents are correct, i.e., correct with respect to the TL whose norm he is attempting to produce? This question finally brings us face to face with the notion of success in absolute terms: productive performance in the TL by the second language learner which is identical to that produced by the native speaker of that TL. We noted this earlier so as to exclude from our idealized domain of inquiry those learners of second languages who reactivate[38] the latent language structure that is realized into a native language. In this chapter we are concentrating on attempted learning of a second language, unsuccessful in this absolute sense. Of course, success in second language learning need not be defined so absolutely. The teacher or the learner can be satisfied with the learner's achieving what has been called "communicative competence" (see, for example, Jakobovits, 1970 or Hymes, 1972). But this is not the issue here. As was pointed out in the introduction the emphasis upon what the teacher has to do in order to help the learner achieve successful learning belongs to the teaching perspective but in the final analysis, some sort of reactivation may be the only explanation possible for an individual learner who learns any part of a second language well. Reibel (1969) stresses the role of the latent language structure in second language learning by suggesting that it is only when second language learners do the wrong things that they do not "succeed," i.e., "we seek to explain differences between adult learners, not in terms of differences in the innate learning abilities but rather in terms of the way in which they are applied." (p. 8). Kline (1970) attempts to provide a point of contact between Reibel's views and mine by suggesting that any reorganization of an IL to identify with a TL must use the kinds of capacities and abilities Reibel describes.

Specifically concerning the problem raised in the first sentence of the previous paragraph, it seems to me that this question though relevant to SLA is one that depends upon our understanding clearly the psychological extent of interlingual identifications. For example, before we can discover how surface constituents in an IL get reorganized to identity with the TL, we must have a clear idea of what is in that IL, even if we cannot explain why it is there. In Selinker (1969) I believe I have shown that within a very limited interlingual situation, the basis from which linguistic material must be reorganized in order to be correct has been operationally and unambiguously established. But I have there said nothing about the way in which successful learners do in fact reorganize linguistic material from this particular IL. Here we can speculate that as part of a definition of learning a second language, successful learning of a second language for most learners involves to a large extent, the reorganization of linguistic material from an IL to identity with a particular TL.

The fourth problem is: (a) what are the relevant units of this hypothesized latent psychological structure within which interlingual identifications exist and (b) is there any evidence for the existence of these units? If relevant data of SLA are in fact parallel utterances in three linguistic systems (NL, IL, and TL), then it seems to me reasonable to hypothesize that the only relevant, one might say, psychologically real, interlingual unit is one which can be described simultaneously for parallel data in the three systems, and, if possible, for experimentally induced data in those systems.

Concerning underlying linguistic structure, we should perhaps not be too surprised if it turns out not to matter whose model we need, if an eclectic one will do, or even if such notions as derivation prove not to have much relevance. If it is reasonable to assume that the only linguistically relevant unit of a theory of second language learning is one which is identified interlingually across three linguistic systems (NL, TL, and IL) by means of fossilization and the processes described earlier, then it follows that no unit of linguistic theory, as these units are currently conceived, could fit this criterion. More generally, we should state that there is no necessary connection between relevant units of linguistic theory and linguistically relevant units of SLA, Watkin (1970) asks whether the rules of IL are of the same general construction or shape as the rules for the same phenomena in the second language, "or are they in a 'recoded' form?". Watkin's data implies the same type of fossilization related to some similarity among rules of different ILs.

For evidence of the relevant unit of surface syntactic structure, applying at one and the same time to these three linguistic systems. I refer the reader to experimental evidence appearing in Chapter 2. In those experiments, subjects responded orally in their native language to questions presented orally in their NL and attempted to respond in English to parallel questions presented in English. The questions came from an interview designed to elicit manifestations of specific types of surface structures in certain syntactic domains. The only experimental instruction given was for each subject to speak in a "complete sentence." Replicated results showed that the interlingual unit of surface syntactic structure transferred from NL to IL (not to TL) was a unit roughly equivalent to the traditional direct object or to an adverb of place, an adverb of time, an adverb of degree, and so on. I would claim that this unit, a surface constituent labeled the syntactic string, has a behavioral unity both in the experimental situation and in meaningful performance situations, and thus, if the results were replicated in other interlingual situations (i.e., other combinations of NL, TL, and IL), would account for a large class of IL events.

With regard to an IL realizational unit, i.e., a syntactic string tied to a specific semantic notion, replicated results from this same series of experiments show that responses concerning a topic such as "subjects studied in school," as opposed to other topics such as "buying and receiving things" and "seeing movies and parades," affected very drastically the surface concatenation of the above-mentioned strings. This semantic effect on surface syntactic order in an interlingual study if further replicated in other interlingual situations, would provide very powerful evidence for the transfer of the whole realizational unit as well as for its candidacy as the unit of realizational structure in interlingual identifications.

Concerning the notion of relevant units on the phonological level, it seems to me that Briere (1968) has demonstrated that for his data there are several relevant units. The relevant units do not always correspond to known linguistic units but rather would depend on the sounds involved; sometimes the taxonomic phoneme is the unit but the unit in other cases seems not to be describable in purely linguistic terms. Briere evolved an experimental technique which imitated to a large extent actual methods of teaching advocated by applied structural linguists: listening to TL sounds, attempted imitation, use of phonemic transcription, physiological explanations, and so on. If I may be allowed to reinterpret Briere's data, it seems to me that he has

been working in another interlingual situation, with exactly the three systems we are discussing here, NL, TL, and IL: first, NL utterances which were hypothesized utterances in American English; second, TL utterances which were actual utterances in the composite language Briere set up, each utterance having been produced by a native speaker of French, Arabic, or Vietnamese; third, IL utterances which were actual utterances produced by native speakers of this NL when attempting to produce this particular TL norm. Regarding the sounds /z/ and /n/ in his TL corpus, the unit identified interlingually across these three systems is the taxonomic phoneme defined distributionally within the syllable as opposed to within the word (Briere, 1968 p. 73). For other sounds the relevant phonological unit of interlingual identifications is not the taxonomic phoneme, but may be based on phonetic parameters some of which, he says, are probably not known (Briere, 1968: p. 73 and 64).

If these units in the domain of interlingual identifications are not necessarily the same units as those in the native-speaker domain, then where do they come from? An interesting bit of speculation about native-speaker performance units is provided by Haggard (1967, p. 335) who states that searching for "the unit" in native-speaker speech perception is a waste of time. Alternative units may be available to native speakers, for example under noise conditions. While other explanations are surely possible for the well-known fact that noise conditions affect performance in a second language, and sometimes drastically, we cannot ignore the possible relevance of Haggard's intriguing suggestion: that alternative language units are available to individuals and that these units are activated under certain conditions. It fits in very well with the perspective outlined in this paper to postulate a new type of psycholinguistic unit, available to an individual whenever he attempts to produce sentences in a second language. This interlingual unit stretches, we hypothesize, across three linguistic systems: NL, IL, and TL, and becomes available to the second language learner who will <u>not</u> achieve native-speaker competence in the TL, whenever he attempts to express or negotiate meanings which he may already have, in a TL he is learning, i.e., whenever he attempts to produce a TL norm. These units become available to the learner only after he has switched his psychic set or state from the native-speaker domain to the new domain of interlingual identifications. I would like to postulate further that these relevant units of interlingual identifications do not come from anywhere; they are latent in the brain in a latent psychological structure, available to an individual whenever he wishes to attempt to produce the norm of any TL. However, different opposing view to the perspective presented here is that presented by Sandra Hamlett and Michael Seitz (personal communication) who have argued that, even for the vast majority of second language learners, there is no already formulated arrangment existing in the brain but that the latent psychological structure alluded to here is developed partly at least by strategies which change up to the age of twelve and remain with an individual for the rest of his life. There seems to be at present no critical empirical test for deciding between these two alternatives.

The final difficulty with this perspective which we will treat here is the following: how can we experiment with three linguistic systems creating the same experimental conditions for each with one unit which is identified interlingually across these systems? I can only refer the reader to the empirical studies in Chapter 2 above and more recent ones in Gass and Selinker (1983). We next move on to an extension of the IL hypothesis from its preoccupation with adults to children who find themselves in certain sociolinguistic conditions.

IV. THE INTERLANGUAGE HYPOTHESIS EXTENDED TO CHILDREN*

Observation suggests that few adults master a second language to the point where they are indistinguishable from native speakers of the target language (TL). Many error analyses have revealed linguistic differences between the sentences produced in a second language by second-language learners and corresponding sentences produced by native speakers. Moreover, observation suggests that these differences, or errors, often remain over time.

Thus it has been proposed that there is a linguistic system which underlies second-language speech--one which is at least partially distinct from both the native language (NL) and TL. This new linguistic system has been called, among other terms, a "learner-language" system (Sampson and Richards, 1973), an "approximative" system (Nemser, 1971), and an "interlanguage" (Selinker, 1972).

The Interlanguage (IL) hypothesis claims that second-language speech rarely conforms to what one expects native speakers of the TL to produce, that it is not an exact translation of the NL, that it differs from the TL in systematic ways, and that the forms of the utterances produced in the second language by a learner are not random. This IL hypothesis proposes that the relevant data of a theory of second-language learning must be the speech forms which result from the attempted expression of meaning in a second language. [This does not negate the possibility of using elicitation procedures (see Corder, 1973; Naiman, 1974; Swain, Dumas and Naiman, 1974). This important criterion is that the second-language speaker is attempting to express meaning as opposed to practising structured exercises in a classroom.

The IL hypothesis had been applied mainly to the learning of a second language by adults. In fact, Chapter 2 above proposed the existence of a latent psychological structure within which interlingual identifications and the processes and strategies underlying second-language learning are located. It is argued in that chapter that the latent psychological structure is activated after puberty, whenever an individual attempts to express meaning in a second language. One of the purposes of the present chapter is to present data extending this claim. We hope to demonstrate that the second-language speech of the seven-year-old children being considered in the present study is noticeably distinguished from what one would expect native seven-year-olds to produce. That is, it is claimed that the IL hypothesis can be extended to child-language acquisition settings, when the second-language acquisition is non-simultaneous, and also when it occurs in the absence of native speaking peers of the TL.

We have distinguished settings where native speaking peers of the TL are present from those where native speaking peers of the TL are absent because the several studies that have investigated non-simultaneous child-language acquisition when native speaking peers of the TL are present (Dulay and Burt, 1972; Ervin-Tripp, 1974) suggest that many so-called errors are "developmental" in nature, that is, they are eradicated over time. However, when native speaking peers are absent, there is some indication (Naiman, 1974a) that not all errors

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are developmental; some become "fossilized". It is this characteristic of fossilized errors which is reminiscent of adult second-language speech.

It appears from a consideration of the growing literature that there are at least four sets of observables that underlie the IL hypothesis and that each of these is open to investigation. First, the **stability** over time of certain errors and other surface forms in learner-language systems. Second, the **mutual intelligibility** that appears to exist among speakers of the same IL. Third, the phenomenon of **backsliding** or the regular reappearance in bilingual speech of fossilized forms that were thought to be eradicated. And fourth, the **systematicity** of the IL at one particular point in time.

It is this fourth area, that is, the systematicity of learner speech at one particular point in time, that we are concerned with in this paper. By systematicity we do not mean features of speech which are predictable by grammatical rule on a given occasion; no linguistic theory can do that, even when the complications of bilingualism are not brought in. We would like to pursue a definition put forth by Cancino, Rosansky, and Schumann (1974)--that since second-language speech is after all in the process of developing, systematicity here may mean that such speech evidences recognizable strategies. The term "strategy" is used to refer to cognitive activities relating to the processing of second-language data in the attempt to express meaning. These strategies may occur at the conscious or subconscious level. In this paper, we focus on three learning strategies--the strategies of **language transfer**, **overgeneralization of TV rules**, and **simplification**.

4.1 SUBJECTS AND PROCEDURES

The data to be considered were collected from ten boys and ten girls, each about seven and a half years old and each a native speaker of English. With the exception of one boy who occasionally used German at home, for each child it was his first attempt at learning a second language. At the time of data collection, the children were completing their second year of a "French immersion" program in an English-language elementary school in Toronto, Canada. [For a recent evaluation of IL in the Toronto French Immersion setting, see Harley and Swain, 1984.)

The pupils spent the first year attending a half-day kindergarten class. There were 25 pupils in each of two classes. During their daily two and a half hour sessions in kindergarten the teacher, herself a native speaker of French, spoke only French to the children. By the end of the year, the children rarely spoke French spontaneously among themselves, but they were encouraged to speak French whenever they addressed the teacher. During the second year (i.e., grade one), the pupils were taught the same curriculum as was taught in the English-speaking grade one classes, but with French as the medium of instruction taught by a native speaker of French. By November of the grade one year, the pupils were consistently using French to talk to their teacher and among themselves in the classroom setting.

During the last month of the grade one year, Dumas (himself a native speaker of French) tape-recorded a conversation in French of about ten to fifteen minutes in length with each of ten boys and ten girls. The conversations centered around the personal interests of the children, their vacation plans, descriptions of pictures and story-

telling from a series of pictures. The atmosphere was relaxed as Dumas had spent several hours a month with the children over the two-year period. The children were at ease when they responded to his questions and spoke of their activities.

French does not play an active role in the life of the community where these children live. Thus, they rarely spoke French outside of class hours. Most importantly, they did not have any regular contact with native French speakers of their own age. In sum, the only people the French immersion pupils spoke French with were their teacher, their schoolmates in class, and the occasional classroom visitor.

Generally speaking, by the end of grade one, the French immersion children communicated effectively in French. In other words, they had little trouble understanding French as demonstrated by their accurate responses to most of the questions posed by Dumas (or their teacher), and they had little trouble expressing in French what they wanted to say (as exhibited by the general fluency of their speech, and a lack of obvious signs of frustration). In listening to these children speak French, one is left with the overall impression that their "weaknesses" were not so much at the phonetic level or in vocabulary choice, but in their use of grammatical structures.

4.2 THREE LEARNING STRATEGIES

We agree with Corder (1971, 1973) that basing one's IL description solely on linguistic forms judged to be "errors" leads to a distorted view of the IL system. We present them here because they appear to represent the learning strategies at the process level that we wish to study. All examples appear more than once in the data. In the next chapter we discuss matters of sampling. Furthermore, many more examples of the operation of each strategy could be given--and it is in the use of these strategies that the data (product level) may be considered systematic.

The data are presented in the following way: the first sentence in each group is a transcription of the data obtained from the French immersion pupils, and the form under consideration is italicized; every form in each example is not discussed. The English material in parentheses is our gloss for the intended meaning in terms of our understanding of the total discourse. The second sentence in each group is the corresponding grammatical French sentence (or sentences) according to several native speakers.

4.2.1 Language Transfer

In sentences 1 to 21 below, examples of language transfer are considered. Language transfer is the apparent application of NL rules to TL forms. In other words, language transfer is the process by which the learner constructs a sentence (or part of a sentence) in the TL in the same way as he would if he were to express the same meaning in his NL.

In sentences 1 to 8 below, examples of lexical language transfer are considered. Sentences 9 to 18 are examples of surface structure grammatical transfer. And sentences 19 to 21 are examples of

language transfer occurring in the syntactic derivation of the sentence, or in other words, deep structure grammatical transfer.

(1) Elle marche les chats. (She's walking the cats.)
Elle fait faire une promenade aux chats.
Elle promene les chats.

In (1), the child appears to have identified the English verb walk with the French verb marcher. Walk, however, may be used transitively or intransitively; whereas marcher can be used only intransitively. The child appears to have transferred the transitive meaning of walk to the French verb marcher; that is, he has ignored the syntactic constraints of the French verb.

(2) Des temps. (Sometimes.)
Parfois, quelquefois, des fois.

From the transcripts, (2) appears to be an attempt to translate the English word sometimes, perhaps on the model of des fois. In some cases the French des can be translated as some, but the identification of the word times with temps is unacceptable in this case. The word time covers a different semantic domain in English than the word temps in French. As appears to happen with adults, the child may have to bring the different meanings of the word time to his conscious attention before he can sort out the French.

(3) Il est trois ans. (He's three years old.)
Il a trois ans.

The substitution of the verb etre for the verb avoir in constructions of the type seen in (3) is another example of lexical language transfer and is common in our data. Note that a word-for-word translation of sentence (3) in English--*He is three years.--would have to be starred ungrammatical.

(4) Il regarde comme six. (He looks like six years old.)
Il a l'air de six ans.
Il a l'air d'avoir six ans.

(5) Ca regarde tres drole. (It looks very funny.)
Ca semble tres drole.
amusant.

The meaning given to the verb regarder in examples (4) and (5) is not one which native speakers of French would consider acceptable. The French verb regarder can be translated by the English verb look only when the intended meaning is look at. What appears to have happened here is that the language learner has taken the gloss "look" rather than "look at" as the primary meaning of the English verb look. Thus, in this type of lexical language transfer, the learner transfers his primary meaning of the verb, using it in any context and ignoring semantic and syntactic constraints. Perhaps this is part of a general strategy which says: "look for one word solutions" or "look for equivalences at the word level". (See also the section on simplification below). This may account for the use of regarde comme in (4) for looks like.

(6) Ses cheveux looks comme un garcon. (Her hair looks like a boy's.)
Ses cheveux {semblent etre / ressemblent a} ceux d'un garcon.

(7) Je dois de spell mon nom pour toi. (I have to spell my name for you.)
Je dois {epeler mon nom pour toi. / t'epeler mon nom.}

Examples (6) and (7) are illustrative of the pervasiveness of this strategy of lexical language transfer. In these examples the learner seems to stop short of translating, but produces what might be a previous mental stage, that is, inserting the English word in his French. (6) is especially interesting as it appears to be the same surface construction as (4).

(8) Je vais manger des pour souper. (I'm gonna eat some for supper.)
Je vais en manger pour souper.

As mentioned above, the French word des can sometimes be translated as the English word some, but never in the context as the one presented in (8). We believe this strategy of transferring lexical items, in this case one with a quantity or degree meaning, is part of the general strategy mentioned above--that of transferring the meaning in the NL that the learner sees as primary,[40] to any context in the TL. The complexities of en in French make this example particularly striking. That is, when the equivalent of some is a pronoun, it is no longer translatable into French by des. This shift in grammatical category combines lexical language transfer with a kind of grammatical language transfer, and has rarely been noted in other bilingual data. Even when children were requested to translate from English to French, shifts in grammatical or semantic categories were not observed (Swain, Naiman and Dumas, 1972).

(9) Le chien a mange les. (The dog ate them.)
Le chien les a manges.

(10) Il veut les encore. (He still wants them.)
Il les veut encore.

Sentences 9 to 18 are examples of surface structure grammatical transfer. In (9) and (10) the English rule which places pronouns in a sentence is applied to French.

(11) Des droles films. (Some funny movies.)
Des films droles.

(12) Je aller le francais camp. (I'm gonna go to a French camp.)
Je vais aller au camp francais.

The italicized portions of sentences (11) and (12) seem equally clear--the English rule which places adjectives before the noun is applied to French.

(13) Je juste veux un. (I only want one.)
J'en veux juste un.

(14) Le chat toujours mordre. (The cat always bites.)
Le chat mord toujours.

A similar thing seems to be happening in (13) and (14). This time, the English surface structure rule which places adverbs before verbs is misapplied to French.

(15) Quand mon bebe est grand, quand
il est deux.... (When my baby is big, when he is two....)
Quand mon bebe sera grand, quand il aura deux ans....

(16) Avant je vais....(Before I go....)
Avant que j'aille....
Avant d'aller....

Another case in point involves examples (15) and (16). Note the italicized portions. The learner appears to be applying rules of English tense agreement to the French construction.

(17) Un chalet qu'on va aller a. (A cottage that we're gonna go to.)
Un chalet ou on va aller.

The above example, number (17) indicates the application to French underlying morphemes of the English process of stranding of prepositions. In addition, the learner has not applied the optional English rule of that-deletion. In general, the latter is a good strategy for French, but in this case it is nullified by the fact that one cannot strand a preposition like this in French.

(18) Le sac a un trou dans le. (The bag has a hole in it. There's a hole in the bag.)
Il y a un trou dans le sac.

On the fact of it, (18) appears to be similar to the improper pronoun placement in (9) and (10) above. But as can be seen in the second gloss, the learner has at his disposal not only the base-type sentence, The bag has a hole in it, but also a sentence produced by the rule of there-insertion, that is, There's a hole in the bag. Had he chosen the latter, he would have avoided the ungrammatical sequence preposition-pronoun at the end of a French sentence.

(19) Il veut moi de dire francais a il. (He wants me to speak French to him.)
Il veut que je lui parle francais.

There are multiple errors in (19), but the one under consideration is the misapplication in underlying structure of the rule of subject raising to a class of verbs which cannot take it. This appears to be a case of language transfer occurring in the syntactic derivation of the sentence, since the verb want in English can take subject raising in object position, thus producing the string: Someone wants someone else to do something. As can be seen from (19), the French verb vouloir must take a that-complement if the subjects differ in the two clauses.

(20) Il n'aime pas ø francais. (He doesn't like French.)
Il n'aime pas le francais.

(21) ø chats. (Cats!) As an answer to the question:
Est-ce que to preferes les chiens ou les chats?
(Do you prefer dogs or cats?)
Les chats.

(22) J'ø ai deux. (I've got two.)
J'en ai deux.

In (20), (21) and (22), the children appear to be applying English rules of deletion to French. In leaving out the articles which are required in the grammatical form of French sentences (20) and (21), the child is implying that he does not know the rules of constituent boundaries in French, since the clitic is an inherent part of the noun, and the constituent boundary is to the left of it. Example (21) is quite complex since generic meanings are involved. That is, in discourse, a word-for-word translation of the grammatical French form of (21) into English would deny the generic meaning the child is trying to produce. As mentioned above, the omission of the pronoun en is quite common in these data.

(23) Une maison nouvelle. (A new house)
Une nouvelle maison.

4.2.2 Overgeneralization

Sentences (23) to (27) are examples of the overgeneralization of rules of the TL. (23) shows the overgeneralization of the French adjective placement rule to an adjective which precedes the noun.

(24) Je lis des histoires a il en francais.
(I read stories to him in French.
I read him stories in French.)
Je lui lis des histoires en francais.

(24) shows the overgeneralization of the subject form of the French personal pronoun to a context where the object form is required.

(25) Le prend un...et apres le prend l'autre. (He takes one and afterwards, he takes the other.)
Il (en) prend un...et apres il prend l'autre.

Similarly, the object form of French personal pronouns were sometimes used in contexts requiring the subject form as in (25).

(26) Il a coure. (He ran.)
Il a couru.

In (26) the past tense form is modelled on the most common conjugation.

(27) Il a se sauve. (He ran away.)
Il s'est sauve.

In (27) the learner appears to perceive the reflexive verb as a single unit and forms the past tense in a manner similar to other verbs he knows.

4.2.3 Simplification

Sentences 28 to 33 are illustrative of the strategy of simplification of the TL system. Simplification may be related to the language transfer strategy discussed above, that is, pick one meaning and use the translation equivalent in all contexts. In examples 28 to 33, simplicity seems to mean pick one form--in this case the infinitive--and use it in all cases. This strategy is probably related to overgeneralization of TL rules as well. In fact, it may be the case that overgeneralization is one type of simplification. We have also hinted at a possible link between the strategies of simplification and language transfer. Thus, it may turn out to be more fruitful to consider simplification as the "superordinate strategy" with overgeneralization and language transfer as types of simplification. [References to further discussion of simplification as a learning strategy appear in the previous chapter.]

(28) Quand on faire "wouf", il entend. (When we go "wouf", he listens.)
Quand on fait "wouf", il entend.

(29) Mon maman et mon papa aller a Glendon. (My mom and Dad go to Glendon.)
Ma maman et mon papa vont a Glendon.

(30) Le fille mettre du confiture sur le pain.
(The girl puts some jam on the bread.)
La fille met de la confiture sur le pain.

Examples (28), (29) and (30) show the infinitive being used for present time and habitual meanings.

(31) L'autre fois je' aller camping. (The other day I went camping.)
L'autre jour je suis alle faire du camping.

(31) shows the infinitive being used for a past tense meaning, while (12) shows the infinitive being used for a future time meaning.

(32) Le garcon a sortir de l'eau. (The boy went out of the water.)
Le garcon est sorti de l'eau.

(33) Je n'sais pas parce que je n'ai pas voir.
(I don't know because I didn't see.)
Je n'sais pas parce que je n'ai pas vu.

(34) Q: Ici, qu'est-ce qu'il fait? (Here, what's he doing?)
R: ø Nager. (He's swimming.)
Swimming.
R: Il nage.

(32), (33) and (34) show some other incorrect uses of the infinitive.

(34) is particularly interesting since it would appear that not only might a simplification strategy of deletion be operating but an additional strategy related to language transfer. That is, in

spoken English discourse, it is quite possible to leave out the pronoun subject and the verb to be. This leads us to a general hypothesis which must be investigated in the future: when more than one strategy intersects in second-language acquisition, there will be more "power" or stability in the resultant IL.[41]

(35) Un jour qui chaud. (A hot day.)
Un jour chaud.

In example (35), the learner seems to be using a strategy or set of strategies to avoid postposing the adjective in French. In this example, some sort of simplification is probably involved as well as the transfer from English of part of the underlying process of adjective formation. Only in part, that is, because the learner took the English process part way, deleting the is, but not the wh-morpheme.

4.3 CONCLUSIONS

We have considered a number of examples of the speech of children as they attempt to express meaning in French, their second language. From these examples, several learning strategies have been inferred--language transfer, overgeneralization of TL rules, and simplification. It is in the consistent use of these strategies that their IL is viewed as systematic. In some cases, several learning strategies may be operating simultaneously or sequentially, resulting perhaps in greater IL stability. Stability in their IL at any point in time and over time, however, remains to be examined, as well as the degree to which the sociolinguistic setting here isolated affects IL variation and IL change and non-change over time; this topic is what we move to in the next chapter.

V. SYSTEMATICITY/VARIABILITY AND STABILITY/INSTABILITY IN INTERLANGUAGE SYSTEMS*

One of the most promising settings for the collection of data for second-language acquisition research is that of the "immersion" classroom. In the Canadian French-immersion programs, children are apparently achieveing great fluency in French as a second language outside of the traditional formal language classroom. Their acquisition of French in an immersion environment has provided a wealth of exciting data for research.

The Toronto French immersion program has been evaluated since its beginning by the Bilingual Education Project of the Ontario Institute for Studies in Education (see, for example, Barik, Swain and McTavish, 1974). Specific consideration of the acquisition of French as a second language in the Toronto French immersion program begins with the work of Swain, Naiman and Dumas (1972). Other related studies include Naiman (1973), Swain, Dumas and Naiman (1974), Swain (1975), Selinker, Swain and Dumas (1975), Chapter 4 here. For a review of the research literature related to French immersion review of the research literature related to French immersion programs in Canada, see Swain (1974). And for a recent evaluation of IL in the immersion setting, see Harley and Swain (1984).

In the previous chapter, we attempted to show that the Interlanguage (IL) Hypothesis--a hypothesis which was originally based on the study of SLA in adults -- should be extended to at least one other language-acquisition setting. We attempted to show that Toronto French-immersion children, even when they seemingly communicate quite fluently in French, produce language forms that are very similar to those produced by adult learners. It is predicted in that chapter that children in non-simultaneous bilingual settings will produce such forms under the sociolinguistic condition of absence of native-speaking peers of the target language. What is not discussed in that chapter is the amazing amount of variability on the part of each learner, as well as between learners. For example, we found in our data that a particular child had, within a two-minute segment on the tape, produced three variations in his French of the semantic content, "I like....". He said, first of all,

(1) J'ai aime....

then the correct:

(2) J'aime....

and, finally, a different incorrect form:

(3) Je aime....

How are we to account for such variability? And is it possible to maintain the notion "system", so central to the IL hypothesis, given such variability? At present there appear to be no easy answers to these questions. In this paper on "variability" and

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"instability", we present what we have discovered to date. We believe that we have been able to sharpen these questions somewhat, and that the new data that we have collected helps us to understand a little better the principles of the organization of second-language (L2) speech in immersion programs. However, what we say in this paper has to be regarded as very tentative since it is only one step in a very long process.

5.1 GENERAL ISSUES

Our goal, in the most general terms, is to understand something about the processes and strategies of second-language acquisition. We should recognize that within this framework there are many possible interests, all of which are legitimate. Some of these possibilities are:

(1) to study the order in which linguistic items appear in learner speech (whether it be surface morphemes or the speech product of "requesting strategies");

(2) to study those linguistic items that remain in learner speech and writing over time;

(3) to study the amount of time from the onset of learning to the mastery of a particular form or rule;

(4) to study the purposes for which a second language is learned, looking at such things as the strategies used in "advanced reading in a second language for professional needs;"

(5) possible universal second-language learning and production strategies;

(6) variations in learning styles;

(7) the relationship between the universal learning and production strategies and some individual styles of variation.

It is the goal of this research to try to discover the facts of the organization of child second-language speech in immersion programs, and if possible, to suggest hypotheses to account for these facts. One suggested way of looking at such speech has been termed the IL hypothesis--a hypothesis developed mostly in the area of adult second-language speech. Many people over the years have contributed to the development of that hypothesis, leading to a relatively clear understanding of the problems related to it. The strength of the IL hypothesis, it seems to us, is that it has generated and continues to generate a great deal of research.

The following studyable facts basically hold true for the second-language acquisition settings examined to date:

(1) Whenever a learner attempts to express meaning in a second language, the utterances which he or she produces will not be identical with those which would have been produced by the native speaker of the target

language (TL) (in attempting to express the same meaning).

(2) Furthermore, some utterances (and some portions of utterances) may remain [fossilized] in learner speech and writing over time.

(3) Learner-produced L2 utterances will not be an exact translation from the native language (NL) but will be formed by a variety of learning and production strategies, language transfer clearly being a major strategy.

From these facts emerge the following hypotheses: there exists a separate linguistic or psycholinguistic system (interlanguage) which forms in the mind of the learner and which may take the form of a pidgin and which may develop into a separate dialect in its own right. This system draws on both the NL and TL, as well as other sources, for its surface forms. [An assumption held by some researchers working in the area of the organization of second-language speech--but not by this author - is that the learner's language is (a) "directional" in that it evolves in stages which closer and closer "approximate" the norm of the TL, and (b) that these stages are necessarily discrete (cf. Nemser, 1971). Note that (a) and (b) are separable claims. These are the crucial assumptions which separate the "interlanguage hypothesis" from the "approximative systems hypothesis", as we understand it.]

Since the original proposal of the IL hypothesis in the period 1967-69, many questions have been raised. The following have proven particularly troublesome:

(1) What does "systematic" mean? It cannot mean that you predict second-language speech by rule; it might mean that second-language speech is the result of recognizable strategies. Are there other possibilities?

(2) What does the "system" consist of?

(3) Does the IL hypothesis provide a framework for ongoing research and, if so, what is that framework?

(4) Does the IL exist in the mind of the individual learner or is it what groups have in common? Or are both simultaneously possible?

(5) Exactly what gets fossilized over time? Forms? Strategies? Or both? And are some types of fossilization permanent?

(6) How can there be a "system" when in most researchers' data there appears so much variability among learners? That is, is there a cutoff point where the notion "system" no longer makes sense?

As a result of our research on the L2 speech of the Toronto French-immersion children we find the following studyable facts to hold true:

(1) The Toronto children in June of their third year of French immersion were able to communicate adequately in French. Yet their French is noticeably not the French of their teachers. From the second year to the third year, some things remain in their learner speech over time and some things change.

(2) It is impossible to account for all of the surface forms in their second-language speech as the result of translation from their NL, though language transfer is clearly a major strategy.

From these facts emerge the following hypothesis: when these children attempt to express meaning in French, they are operating with a separate linguistic or psycholinguistic system, namely a type of French IL, which shares certain features with pidgin languages and which developing into a separate dialect in its own right.

As was pointed out in the previous chapter, there are four sets of observable facts upon which the IL hypothesis is based, and which may be used to evaluate that hypothesis. Each of these observable facts is studyable: first, the stability over time of certain surface forms in learner-language systems (i.e., "fossilization"); second, the mutual intelligibility that appears to exist among the speakers of an IL; third, the phenomenon of backsliding, or the regular reappearance in bilingual speech of fossilized errors that were thought to be eradicated; and fourth, the systematicity of the IL at one particular point in time. In the present study, we chose to look at a developing IL for systematicity at two separate points in time, and to look at its stability over time. Accordingly, in this paper we report on a longitudinal study. In addition, as a byproduct of our study, we are able to comment on some instances of backsliding.

5.2 SOME THEORETICAL PROBLEMS

Before we discuss the data, we feel we must consider some central theoretical problems, and clarify some terminological distinctions in the process.

First of all, in this volume we call learner speech "systematic" when it evidences an internal consistency in the use of forms at a single point in time; we call such speech "stable" when it evidences such a consistency in the use of forms over time. (Generally, in longitudinal language-learning studies, the precise definition of "over time" has been determined by the length of time between successive sampling sessions; in some studies, the intervening period has been two weeks, while in others, it has been up to one year.) Correspondingly, speech which is not systematic at a single point in time evidences "variability", while speech which is not stable over time evidences "instability". Where the learner's language lacks internal consistency, it is the task of the researcher to isolate and identify those psychological, social or stylistic factors which cause variability and instability.

Second, in our own thinking about L2 acquisition, we have found it useful to distinguish two types of individuals. A Type I individual is one whose IL is characterized by stability. Such an individual has stopped learning, where "learning" is defined as instability or change in the IL system over time. A Type I individual has

been variously described in the literature as having a "fossilized competence" (Coulter, 1968), a "functional competence" (Jain, 1969, see also Jain, 1974: 208) or a "stable approximative system" (Nemser, 1971). A Type II individual is one who continues to "learn" in the sense of learning described above. That is, this individual has an IL system characterized by its instability; it is in a constant process of change over time. Studies by Cancino, Rosansky and Schumann (1974) and Hakuta (1975) have described Type II learners, and note the difficulty involved in attempting to make empirical or theoretical statements about such learners, due to their characteristic lack of stability over time as well as their frequent lack of systematicity at a particular point in time. Adjemian (1975) describes the competence of the Type II learner as "permeable", where "permeability" is defined as "the property of ILs which allows", on the one hand, "penetration into an IL system of rules foreign to its internal systematicity," and which allows, on the other, "the overgeneralization of an IL rule"(21).

We feel it is important to note that the individuals in the studies reported here and the preceding chapter, in Swain, Naiman and Dumas (1972), and in Swain (1975) are Type II individuals, and we hypothesize that with the passage of time, they will become Type I individuals with stabilized competences and perhaps with their own dialect of French. We feel that this process will be gradual and not necessarily linear.

The third issue we discuss centers upon the fact that in attempting to characterize the nature of the competence which underlies the surface forms in an IL, both the term "rule" and the term "strategy" have been used very loosely, as Cancino, Rosansky and Schumann (1974) point out. Here, we specifically ask the following questions:

(1) Are IL surface forms shaped by the use of morphological and syntactic rules of the sort described by theoretical linguists?

(2) Or, are they shaped by strategies such as simplification, transfer of NL rules, or prefabrication?

(3) Or, are they simultaneously shaped by both (1) and (2)?

Past attempts to incorporate both grammatical rules and strategies into a model of second-language acquisition have led to serious theoretical impasses, as Adjemian (1975) points out. Perhaps most central to the dilemma is the fact that L2 acquisition research so far has centered upon productive performance in L2 speech and writing. It is important to note that syntactic rules as they have traditionally existed in linguistic grammars are not descriptive of actual speech performance, but of the intuitions of native speakers of a language. Since we still do not know very much about the intuitions of second-language learners, or how to gain access to those intuitions, it is, perhaps, unwise to formulate sets of syntactic rules to describe the IL, at least at this point.

In this chapter, we primarily reserve the term "rule" to describe those systematic grammatical structures which have been called "surfacy" (cf. Kegl, 1975), since we feel that only these types of grammatical rules can be safely inferred from the data at our disposal. As regards "rules" in this sense, we have been able to infer from the Toronto French-immersion data we have looked at, that these Type II

individuals are using in their IL, grammatical structures such as word order, inflection and function words to convey meanings and relationships.[43] Below we discuss inflection in detail, and begin to explore the grammatical relations of different rules.

Similarly, the term "strategy" needs clarification. In the past, the term seems to have been used ambiguously to refer to either a "learning strategy" or a "production strategy", neither of which has been clearly defined. In this paper, we use the term "learning strategy" to refer to a process of rule-formation. A learning strategy is a tentative hypothesis which the learner forms about the nature of the L2, which is tested and subsequently modified. So, for example, a learner might begin by using a learning strategy of language transfer, using L1 rules in the IL. The rules which are produced by learning strategies are, by definition, unstable--changing over time. Thus, learning strategies are a part of the general process of hypothesis-formation and hypothesis-testing in language learning.

A "production strategy", on the other hand, is a more general process. A production strategy is a systematic attempt by the learner to express meaning in the TL, in situations where the appropriate systematic TL rules have not been formed. A "production strategy" does not necessarily result in a rule, since it may be an "avoidance strategy" or an "appeal to authority". And, unlike the learning strategy just discussed, a "production strategy" may be either stable or unstable.

Clearly, in the Type II individual both types of strategies are used. The IL is still changing over time--hypotheses are formed, tested, rejected and reformed; learning strategies are in operation. Similarly, the individual is attempting to express meanings for which he has no appropriate TL rules, so that production strategies are also in operation.

However, for the Type I individual, who by definition seems to have a stabilized IL, learning strategies are for the most part no longer operative. Stable production strategies are of course used by the Type I learner, who has not achieved native-like proficiency.

In light of the discussion above, therefore, in this paper we attempt to avoid the term "strategy" as used in an undifferentiated sense, but speak either of learning strategies or production strategies whenever those strategies can be clearly distinguished.

A final point to remember is that one cannot study either rules or strategies directly; one can only study spoken and written IL production. The types of rules and strategies discussed above are only inferrable from speech and writing.

5.3 METHODOLOGY, PROCEDURE AND SUBJECTS

Corder (1975) whose methodological suggestions we follow here, states that researchers need to make longitudinal studies of language learning, correlating the linguistic development of learners with the data which is put before them, carefully distinguishing between "input" and "intake". He further states that, in a longitudinal study, there are three types of data upon which one should base descriptions of successive stages of IL speech:

(1) A body of utterances by the learner is referred to as the "textual" data. Although "textual" data is usually too small in quantity and may not be a representative sample of the learner's language, it nevertheless provides useful hypotheses about the learner's language.

(2) Hypotheses which were formed on the basis of the textual data require "explanatory refinement" by several types of contrastive analysis, and this provides a second and important auxiliary source of data about the learner's language.

(3) These hypotheses are validated or invalidated by "elicitation procedures", whose object is to gain access to the learner's intuition about particular aspects of his IL.

In investigating the issue of stability and systematicity in L2 speech, it is important to quantify one's observations whenever it makes sense to do so, since the use of anecdotal data can be extremely misleading in this type of investigation. Labov (1972) in his work on dialectal variation, has pointed out repeatedly that speech is perceived "categorically;" that is, socially marked forms tend to be more salient to the observer than they are in fact. Specifically, researchers, when working with speech data, will often tend to perceive speech even more categorically than most, because they are attempting to find invariant, homogeneous speech patterns. In order to avoid the resultant bias of the data, Labov has proposed a principle of accountability:

> ... any variable form (a member of a set of alternative ways of "saying the same thing") should be reported with the proportion of cases in which the form did occur in the relevant environment, compared to the total number of cases in which it might have occurred. (Labov, 1972: 94)

That is, the data should be reported in ratio or percentage form if possible. This means that we should ask: What percent of the time did the variable form appear in the relevant environment? In our investigation of variability in interlanguage systems, we have found this principle to be extremely important, and refer to it below in our discussion of "morphological data".

In quantitative studies, the crucial problem of what to count is by no means easily solved. Here again, some guidelines set out by Labov are helpful. A three-step process is used:

(1) identify the total sample of utterances in which the feature varies;

(2) decide on the number of variants which can reasonably be identified, and set aside the environments in which the distinctions are neutralized;

(3) identify those factors which might cause the frequency with which the form occurs. (Labov, 1972: 82-83)

In this chapter we look at the development of IL speech in terms of "textual" data in Corder's (1973) sense, analyzed within the guidelines proposed by Labov. We look at three areas in the speech of

the immersion children described below: morphological, syntactic and semantic. In the morphological data, we look at the choice of allomorphic form; in the syntactic data, we look at the choice of alternate surface structures and discuss possible cases of syntactic rule transfer; in the semantic data, we look at the choice of lexical items and certain semantic processes.

Importantly, we note that at both Time I and Time II, variability occurs within each of these three areas. In morphology, ordinarily, any variability necessarily results in incorrect forms or errors, since there usually exists only one possible correct form in the target language. However, a great deal of variability may be permitted in syntax and semantics, since several "correct" forms may be possible in the target language. Therefore, assessment of morphology takes the form of a strict error analysis. On the other hand, because investigation of syntactic and semantic structures and forms presents problems beyond the scope of a strict error analysis, we supplement the error analysis with other techniques, among them the techniques which we discussed above.

Time I Data. In our study, data at Time I (i.e. the data reported in Chapter 4) were collected from ten boys and ten girls, each about seven and a half years old and each a native speaker of English. With the exception of one boy who occasionally used German at home, for each child it was the first attempt at learning a second language. At Time I data collection, the children were completing their second year of a French immersion program in an English-language elementary school in Toronto. During the last month of their second year of French immersion, Guy Dumas (himself a native speaker of French) tape-recorded a conversation in French of about ten to fifteen minutes in length with each of the children. The conversations centered around the students' personal interests, their vacation plans, descriptions of pictures and story-telling from a series of pictures. The atmosphere was relaxed, as Dumas had spent several hours a month with the children over a two-year period. The children were at ease when they responded to his questions and spoke of their activities.

Time II Data. During the last month of the children's third year of French immersion, Uli Frauenfelder collected data in the same Toronto French immersion class, with ten of the same children, (now eight and a half years old), using the same techniques (and even the same pictures) as were described above.

L1 Base-Line Data. In order to establish a L1 base-line for comparative and contrastive purposes, four monolingual English-speaking children in Seattle (ages seven and eight) were given the picture task in the same way.

5.4 IL MORPHOLOGICAL DATA[44]

We examined two areas of morphology in the transcribed speech of these children. We looked at the third person pronouns for gender agreement and at verbs for number agreement with first and third person subjects. Our decision to study these items was influenced by our desire to deal with areas that were easily quantifiable (see Labov's guidelines, above). The criteria that we used for the selection of these items include frequency of occurrence and number of variants. The high frequency of occurrence of the pronouns and verbs in our data permits a reliable statistical study.

We believe that these forms will also occur frequently in the data of their researchers studying the acquisition of French as a second language, and therefore it should be possible to compare and verify findings across studies. The binary nature of the grammatical categories of number and gender (singular/plural and masculine/feminine) further facilitates an analysis since there are only two variants to deal with for each grammatical category. Consequently, the assessment of gender and number can take the form of a strict error analysis, with a form being either correct or incorrect in a given obligatory context. One further advantage of studying gender is the possibility of avoiding semantic ambiguity, since the gender of the referent is clear from the context in this study.

5.4.1 Procedure for Analysis of Morphology

Our procedure, following Labov, was to first count the total number of samples in which the variants occurred. The cases in which the variants could not be unambiguously identified were deleted. So, for example, the variants which were phonologically similar or neutralized were not counted. In some cases, for example, il could not be distinguished from elle, because the form / l/ was produced rather than either /il/ or / l/. Similarly, in some contexts it was impossible to determine whether a verb was singular or plural since in French, endings are often not pronounced. Ratios were then set up to give the percentage correct forms for each obligatory context. We then attempted to identify patterns of systematicity and stability, and finally we attempted possible explanations of these patterns in terms of underlying strategies as well as the various social and linguistic factors we suspect were involved.

Some theoretical considerations. The binary grammatical categories of gender and number each consist of two components--masculine/feminine, and singular/plural, respectively. Within a grammatical category, the realization of either of the two components is determined by the obligatory context (arbitrarily, obligatory context X or Y) in which it occurs. For the data which we will be considering, there are variants (arbitararily, variant x or y) like il or elle that are required in the respective obligatory contexts. The ratio that we will be using can be easily described in terms of this notation:

$$\frac{\text{total number of variants x produced in obligatory context X}}{\text{total number of obligatory contexts X}}$$

So, for example, this ratio for the masculine context would take the form:

$$\frac{\text{total no. of mascul. variants(il) produced in obligatory context(mascul.)}}{\text{total number of obligatory contexts for masculine}}$$

The decision as to which patterns in the learner speech should be considered "systematic" at one particular point in time, or "stable" over time is not simple. We have found it necessary to develop a new taxonomy to handle this question for binary grammatical categories like number and gender. We have tried to define some statistical parameters for the terms "systematic" and "stable" as used in the area of morphology. In Table 4 we list the possible distributions (both systematic and variable) of variant x for the single obligatory context X at a single point in time. In case 1, systematicity (C) is arbitrarily defined as a correct usage of $\geq$ 90% of

variant x for the obligatory context X. In Case 2, another type of systematicity (C) is shown, in which there is less than 10% correct usage of variant x in the obligatory context X. (We follow Brown, 1973, and Hakuta, 1975, in choosing a 90% criterion. Note that since we are dealing with a binary system, where variant x is used less than 10% in obligatory context X, it is true by definition that variant y is used more than 90% in that context.) Finally, it should be noted that we have assumed that any distribution in a sample that is not systematic is variable; that is, a result of between 10% and 90% correct in a given obligatory context is considered a variable occurrence of the variant, as in Case 3. This definition of variability is too broad to be meaningful in terms of its internal structure, but for the purposes of this paper, it serves to delineate the parameters of systematicity at one particular point in time.

Whereas Table 4 shows the logically possible distributions for one variant, Table 5 shows the logically possible distributions (systematic and variable) for both variants x and y in their respective obligatory contexts at a single point in time. It is at this point, where both obligatory contexts of a binary grammatical category are being considered, that inferences about underlying production strategies can be made. When we consider the occurrence of both variants in both obligatory contexts, three types of systematicity are possible in that three different underlying strategies are used: correct application, incorrect application, and overgeneralization. In Table 5, the systematicity shown in Case 1 represents the correct distribution of each variant in its obligatory context. That is, variant x (for example, il) is used more than 90% of the time in obligatory context X (for example, in a masculine context which demands il), and variant y is used more than 90% of the time in obligatory context Y. This type of systematicity is of course expected of native speakers (i.e., we would expect native speakers to mark correctly for gender). The type of systematicity shown in Case 2 is the exact reverse of the correct distribution just mentioned--each variant occurs at less than 10% in its obligatory context. It should be noted that the type of systematicity illustrated in Case 2 is highly unusual. The systematicity shown in Cases 3 and 4 is much more likely. Here, in Case 3, variant x is used more than 90% of the time in both obligatory context X and Y; by definition, then, in this case variant y is used less than 10% of the time in obligatory context Y. So, for example, in Case 3, the masculine form il would be used not only in the obligatory masculine context (X), but also in the obligatory feminine context (Y), at a frequency of> 90%. Case 4 illustrates the exact opposite situation, where variant y is used predominantly for both obligatory contexts. Cases 3 and 4 illustrate a type of overgeneralization. Although this definition of overgeneralization is very restrictive and will have to be revised, it seems particularly important at this time to try to begin to establish a quantitative definition of overgeneralization, since, as is well-known, the term has been used too loosely in the past in this field to have much usefulness.

TABLE 4

Logically Possible Systematic/Variable Distribution of Variant x at a Given Point in Time for an Obligatory Context X

Case	Pattern	Symbol	Definition
1	Systematic	C	usage of $\geq$ 90% of variant *x* in obligatory context *X*
2	Systematic	$\underline{C}$	usage of $\leq$ 10% of variant *x* in obligatory context *X*
3	Variable	V	usage of between 10% and 90% of variant *x* for obligatory context *X*

TABLE 5

Logically Possible Systematic/Variable Distributions of Variants x and y in their Respective Obligatory Contexts X and Y at a Given Point in Time

Case	Pattern	Obligatory Context X	Obligatory Context Y	Production Strategy
1	Systematic	C	C	Correct Application
2	Systematic	$\underline{C}$	$\underline{C}$	Incorrect Application
3	Systematic	C	$\underline{C}$	Overgeneralization
4	Systematic	$\underline{C}$	C	Overgeneralization
5	Variable	V	V	unknown
6	Variable	V	C	unknown
7	Variable	V	$\underline{C}$	unknown
8	Variable	C	V	unknown
9	Variable	$\underline{C}$	V	unknown

The five additional possibilities listed in Table 5 (Cases 5-9) represent variable distributions more complex in nature. An understanding of these variable distributions requires an analysis of the phonological, social, semantic and other environments that favor il and elle. We were unfortunately not able to complete such an analysis in the course of this study. More focused work in this area will obviously allow us to redefine and better understand that variable production which lies between the 10% and 90% range (Cases 1 through 5) in Table 5.

Turning now to a consideration of "stability" and "instability" over time in the occurrence of a single variant x in obligatory context X, we postulate nine logical possibilities into which a learner's production must fall between Time I and Time II. These are illustrated in Table 6. Three of those possibilities (Cases 1-3) illustrate stability (possible fossilization); three (Cases 4-6) illustrate "improvement," a type of instability; and three (Cases 7-9) illustrate "backsliding," another type of instability.

The learners' production shows stability when there is no change in the distribution of the variants over time. Specifically we find that there are three types of stability (Cases 1-3) that are possible when considering one variant in its obligatory context (see Table 7). In Case 1, stability is characterized by the variant being used $\geq$ 90% correctly at both Time I and Time II. (In terms of the

personal pronouns, this would, for example, imply correct usage of $\geq$ 90% of il in its obligatory context (masculine) at both times.) In Case 2, we show stability where at both Time I and Time II there is Systematicity $\underline{C}$; that is, the variant is produced correctly less than 10% at both Time I and Time II. In Case 3, we find that there is stability in the sense that at Time I and Time II, there is variability of production. (Dickerson (1975) shows the existence of a similar "stability of variability" in the phonological domain.)

TABLE 6

The Logically Possible Distributions of Stability and Instability Across Time in Occurrence of Variant x in Obligatory Context X

		Instability			
	Stability		Improvement		Backsliding
Case	T1 T2	Case	T1 T2	Case	T1 T2
1	C→C	4	$\underline{C}$→C	7	C→$\underline{V}$
2	$\underline{C}$→$\underline{C}$*	5	$\underline{V}$→C	8	C→$\underline{C}$
3	V→V*	6	$\underline{C}$→V	9	V→$\underline{C}$

*Indicates "fossilization".

TABLE 7

Individual Learners' Performance in Supplying Correct Gender for Personal Pronouns in Obligatory Context at Time I and Time II

	Percent Correct in Obligatory Context Masculine			Percent Correct in Obligatory Context Feminine		
Child	Time I	Time II	Pattern	Time I	Time II	Pattern
1	100	100	C→C Stability	0	75	$\underline{C}$→V Instability (Improvement)
2	...*	90	...* ...	10	100	$\underline{C}$→C Instability (Improvement)
3	100	100	C→C Stability	0	100	$\underline{C}$→C Instability (Improvement)
4	100	100	C→C Stability	0	90	$\underline{C}$→C Instability (Improvement)
5	100	100	C→C Stability	0	95	$\underline{C}$→C Instability (Improvement)
6	...*	100	...* ...	60	60	V→V Stability
7	...*	100	...* ...	75	60	V→V Stability
8	...*	100	...* ...	40	80	V→V Stability
9	100	100	C→C Stability	100	90	C→C Stability
10	100	100	C→C Stability	100	100	C→C Stability

*Some learners did not supply sufficient (i.e., $\geq$ 5) obligatory contexts for masculine, so their scores were not included here.

Turning next to the six types of instability, we see two broad categories--"improvement" (Cases 4-6), and "backsliding" (Cases 7-9). Improvement over time is shown in three ways. First, Case 4 shows the learner moving from Systematicity $\underline{C}$ to Systematicity C. In other words, the learner has improved from a production of $\leq$ 10% on the masculine pronoun il in the masculine obligatory context, to a production of $\geq$ 90% of il in that context at Time II. Case 5 shows the learner moving from a variable production (between 10% and 90% in obligatory context) to Systematicity C ($\geq$ 90%). Case 6 shows the learner improving from Systematicity $\underline{C}$ ($\leq$ 10%) at Time I to variable production at Time II.

Backsliding over time is also shown in three ways. Case 7 (in the right-hand column of Table 6) shows the learner moving from Systematicity C ($\geq$ 90%) at Time I to variability (between 10% and 90%) at Time II. Case 8 shows a movement away from Systematicity C at Time I to Systematicity $\underline{C}$ at Time II. Finally, Case 9 shows the learner moving from variable production at Time I to Systematicity $\underline{C}$ at Time II.

It is important to note that these permutations are only logical possibilities; not all of them occurred in our data. It would be interesting to separate out those that did not occur and attempt an explanation for these results.

We have now considered all nine possible patterns of stability and instability over time of the occurrence of a single variant x in its obligatory context X. If we now examine the distribution of both variants x and y in their respective obligatory contexts X and Y, in terms of stability and instability over time, we find that there are 81 possible combinations. In other words, each of the nine cases listed in Table 2 for a variant x in its obligatory context X, can be combined with any of the nine cases for the second variant y in its obligatory context Y, giving 81 possibilities.

5.4.2 Results of Gender Analysis

We will first consider the children's performance on their marking for gender on third person pronouns. In order to avoid ambiguity, we considered only those pronouns with human referents.

Some striking results are revealed in the following data:

	Obligatory Context Masculine % Correct	Obligatory Context Feminine % Correct
Time I	100 (C)	33 (V)
Time II	100 (C)	86 (V)

It is immediately apparent that the learners as a group do not perform equally well in supplying each correct variant (il or elle) in its obligatory context. For some reason, the masculine pronoun il is the preferred or unmarked form which is overgeneralized to other contexts. In its obligatory context, the masculine pronoun is used correctly at both Time I and Time II by all learners. However, the feminine pronoun is used correctly in its obligatory context only 33%

of the time at Time I (implying that the incorrect masculine pronoun is used at 67% of the time at Time I). There is considerable improvement by Time II, when the feminine form is used correctly 86% of the time.

Table 7 lists the results in terms of individual performance on personal pronoun gender over time, and reveals more accurately some of the trends we mentioned above. First, for the masculine obligatory context, we find systematicity and stability in all the learners in their use of the masculine pronoun il. The results for the obligatory context for feminine, however, are much more complicated. The learners exhibit complex patterns of systematicity and variability at Time I and Time II, as illustrated in the far-right column of Table 7. It is most important to note that, at Time I, four learners (Child 1, 3, 4 and 5) have overgeneralized the masculine variant to feminine obligatory contexts, where overgeneralization is defined in the strict terms illustrated in Table 5. At Time II, however, none of these learners are any longer overgeneralizing the masculine variant, in the strict sense of the term. There is still some variability evidenced at Time II in the use of the feminine variant in its obligatory context, but improvement is clearly shown in the performance of five children (1-5). Children 6-10 show stability in performance over time, though Child 9 shows some backsliding, which is not significant in terms of our analysis.

5.4.3 Discussion of Results of Gender Analysis

A researcher with the task of predicting the performance of these learners on the production of pronoun gender would not have anticipated the varied results obtained. Predictive statements based on a contrastive analysis of NL and TL, for example, would have suggested few errors within the obligatory contexts provided by the human referents used in this study, since the pronouns "he" and "she" in English correspond exactly to the French il and elle in those contexts. Predictions based on the cognitive development of the children would also have anticipated few errors, since the linguistic and cognitive notions of gender should be well developed by the age of seven years. As shown in Table 7, the results indicate, however, that at Time 4, some of the children completely overgeneralized the masculine variant to the feminine obligatory context.

Since a good explanation for these results is not readily apparent, we can only speculate about what is going on it the children's heads.

The observation has been made elsewhere (Coulter, 1968) that some learners seem to make a decision that they do not want to make the extra effort to be correct. As it stands, those learners feel they can communicate "adequately" with errors intact. It is at this point that Corder's (1972) suggested elicitation procedures might prove insightful to begin to identify types of learning strategies.

5.4.4 Subject-Verb Agreement: Analysis and Results

We next consider the learners' performance on subject-verb agreement. The nature of the experimental task elicited primarily third person verb forms in the narration of the stories, and first person singular verb forms in answering questions. Consequently, the

sample of utterances examined for subject-verb agreement was limited to third person and first person verb forms, in the present tense.

In French, the pronunciation of the third person singular and plural verb forms is often identical (e.g., **la fille donne** and **les filles donnent**). Thus, in spoken French, the singular-plural distinction is not made for all third person verbs. Following Labov's guidelines, those cases were set aside in which the singular-plural verb conjugation was neutralized. Such "ambiguous" verb forms made up about 60% of all the third person verbs produced by the subjects, both at Time I and at Time II. Where verb forms were used which did make a singular-plural distinction in the third person, it was possible to obtain some measure of the learners' patterns of verb agreement.

The following data shows the patterns of singular-plural verb agreement with third person verbs at Time I and Time II:

	Singular Subject (n=119) % Correct	Plural Subject (n=40) % Correct
Time I	100 (C)	14 (V)
Time II	100 (C)	28 (V)

The data we have on singular/plural verb agreement for the third person suggests that the learner is using the singular form of the verb in plural contexts. With singular subjects, the learners never use a plural verb; they use only singular verbs with singular subjects, and, by the quantitative definition above, they are **systematic** (C) in that usage. However, with plural subjects, the learners use predominantly singular verbs instead of plural verbs. Note that their usage of singular verbs with plural subjects is not systematic, by the criterion of "less than 10% correct" set above. It is **variable** (V), at 14% correct at Time I, and 28% correct at Time II. At Time II, there is some improvement in the correct use of the plural verb, but the learners still show variability.

This failure to use the singular verb form correctly cannot be the result of transfer, since English consistently marks the singular and plural verb forms of the third person present tense differently. A possible factor which might contribute to the frequency of the singular verb form is the previously-mentioned fact that in French, the third person singular/plural distinction is very often neutralized in speech. It may be that, because the learners hear no distinction between the singular and plural forms for verbs like **donner** and **tomber**, they fail to systematically distinguish the singular and plural forms for other verbs like **etre** and **faire**. And, in most cases the spoken form of the "ambiguous" verbs most closely resembles the singular verb form, e.g., **donn(ent)**, **tomb(ent)**. It may be that, by analogy, the learners prefer the singular verb form of **etre** or **faire**.

We next examine the first person singular forms of two verbs, **avoir** and **aller**, for subject-verb agreement. The nature of the experimental task appeared to elicit these two verbs in the first person singular form very frequently. In addition, because the first person singular forms of **avoir** and **aller** are easily distinguished from the other present tense forms of those verbs, almost no ambiguous contexts arise.

In using the first person singular of the verb avoir, the learners maintain correct subject-verb agreement 100% of the time at both Time I and Time II. (C -> C) That is, at Time I, where there were seventeen utterances containing the first person singular subject and the verb avoir, the learners use the correct verb form seventeen times; at Time II, out of seven utterances containing a first person singular subject, the learners are correct seven times in verb use.

It must then be assumed that the learners had acquired the correct verb form for the first person singular of avoir before this study began. There is some evidence, further, that the j'ai form is not a "prefabricated pattern" in the sense of Hakuta (1975) because, even at Time I, the learners vary their production between j'ai pas and je n'ai pas.

On the other hand, in the use of the first person singular form of the verb aller, the learners exhibit quite a bit of variation, both at Time I and Time II. In using aller, the learners maintain correct subject-verb agreement 50% of the time at Time I, and 54% of the time at Time II. (V -> V) Where the learners do not use the correct form, je vais, they almost always use the form je va.

One possible cause for this variation which we investigated was the occurrence of immediately preceding forms in the discourse, especially in the question of the interviewers. For example, we found question (4):

(4) Qu'est-ce que tu vas faire?

immediately preceding (5):

(5) Je va lire.

Upon initial examination, there appeared to be a definite correlation between the preceding "tu vas" forms and the incorrect "je va" forms. However, as pointed out above, there is always a danger of selective "categorical perception" on the part of the investigator, since certain forms and patterns may be more perceptually salient than others. In fact, the apparent correlation between tu vas/je va is an excellent case in point; the actual correlation when measured quantitatively, was not any more common than the tu vas/je vais correlation. Thus, use of je va or je vais for these contexts turned out to be a 50/50 chance situation.

Another possible cause of the prevalence of the je va construction is related to that just discussed above. That is, because of the fact that the singular/plural distinction in the third person is often neutralized in French speech, it may be that the learners tend to use the third person singular verb form, not only in third person plural obligatory contexts, but possibly also in the first person singular obligatory contexts. However, as of yet we have no verb frequency data for native French-speaking children of this age to help clarify this point.

Cohen (personal communication) suggests that the students are better at avoir than aller because it is likely that there exists a greater frequency of teacher input, and a possible greater student intake, of the former. Cohen relates this speculation to Boyd's (1975) attribution of imperfect mastery of object pronouns to their low frequency in teacher data.

In any case, at present, we can offer no convincing explanation as to why the learners seem to have acquired the correct verb form for the first person singular of avoir, but not for aller.

5.5 IL SYNTACTIC DATA

One wishes one could be as quantitatively precise about the acquisition of syntactic variables in child French-immersion speech as we have been about those variables related to morphology. One major reason for not being able to do so is inherent in the data itself and has already been given above: syntactic variables, unlike morphological ones, are less likely to be open to binary analysis since in syntax, there is more likely to be more than one correct way of saying the same thing.

5.5.1 Some Theoretical Considerations

We agree with Schumann (1975) that before one can seriously claim that a particular surface syntactic form is part of the learner's IL, it should be demonstrated that it was observed on more than one occasion; i.e., at least some statistical information must be provided. At the same time, we are also thoroughly convinced by Hakuta's (1975) arguments that an over-reliance on statistical procedures can be dangerous. The ever-elusive "happy medium" between quantitative and qualitative analysis is something the field will have to come to grips with.

In considering the data presented in the previous chapter (which is the same data as that considered for Time I here), Schumann (personal communication) has asked us to provide answers for questions such as: How often was a particular form produced by each subject? How many of the subjects produced that particular form? And, how often did the subject get a particular grammatical item right? We did go over the data, and report some results below.

In addition to statistical information, Schumann (1975) has also suggested that the investigator provide other types of information. If the particular form is claimed to be an "error" in terms of the TL, the investigator should report whether it co-existed with other related "incorrect" forms in learner speech at a particular time, and whether it co-existed with the "correct" form as well. Also, we should wish to know whether, over time, it preceded in development or superceded other related forms. Then, if possible, a breakdown of distribution according to other potentially relevant variables such as age, sex, education, etc., should be provided. Given the way error analyses have been done in the past, such information is usually just not available, and it becomes very unclear, in these cases, what is being claimed about the learner's interlanguage.

Note that statistical information on the frequency of occurrence of a form relates to questions raised about the interlanguage hypothesis in Section 1. Suppose we wish, for example, to claim that the transfer of a particular rule has occurred. (This was done, for instance, in the previous chapter with regard to the much-discussed rule of "subject-raising".) Is a single occurrence of that particular rule in the data enough to show its existence? Or, is it the case that a single occurrence of the rule is not enough to show its existence?

If the latter is the case, then it is clear that more sophisticated means of analysis are necessary than have been used to date.

Another important theoretical consideration concerns what was called in the previous chapter "deep structure grammatical transfer. It seems that the issue is two-fold: (1) what exactly is meant by "deep structure grammatical transfer" and (2) how can one show unambiguously that it occurs? Since the present study was not designed to deal with this issue, we just do not have the appropriate data to relate seriously to Question (2). What we hope to be able to do here is to sharpen these questions somewhat. That is, we wish to follow Swain (personal communication) who points out that theoretical discussions of the present type will help to point the way toward data that should be elicited relevant to particular theoretical questions. It is in this spirit that we continue.

Addressing Question (1) above, we have decided to eliminate from our discussion terms such as "deep structure" and "underlying structure". Our reason for this is quite simple; in using these terms, we have invariably had to answer what for us has turned out to be a series of irrelevant questions, questions typified by the following: "Which linguist's deep structure?" In looking at second-language speech data, it makes no sense to tie ourselves to any particular syntactic theory, since the data that we find in interlanguage speech are just not accounted for by any syntactic theory known to us. If this is true, then in looking at this type of phenomena, what exactly were we interested in showing in the previous chapter? We digress slightly here in order to answer this question; most scholars would agree that in order to describe human language, surface structure is not enough. If this is true, then it is inconceivable that only surface structure knowledge could be used in attempting to express meaning in a second language. Then, it would seem to us that we here wish to ask questions of the following type: What besides surface structure knowledge is used in the production of second-language speech? How do we find evidence for it? And how do we best analyze it? One type of phenomenon that we feel that we should explore in this regard is that of "syntactic rule transfer", i.e., the potential existence of the transfer of well-recognized syntactic rules. This is what we were interested in showing in the previous chapter.

Even though particular syntactic rules are often theory-specific, they are useful in describing some of the data we find in immersion speech, and furthermore, in linguistics discussions, the independent existence of many of such rules is often presupposed. Thus in future work, we should take as one goal the providing of unambiguous evidence of specific examples of syntactic rule transfer.

We have searched the literature in vain for discussions of syntactic rule transfer, a question which seems to us central to any theory of second-language acquisition. The only discussion we know of concerning this type of transfer is presented by Kegl (1975). In her study of Slovene-English bilinguals, Kegl provides impressive evidence for the borrowing of the rule called "there-insertion" from American English into American Slovene. The theoretical question she then asks is: Is this rule borrowed as a "surfacy rule" or is it borrowed in terms of the entire spectrum of derivational possibilities? If it is borrowed in the latter sense, then it is borrowed productively and can interact with other rules in the grammar. Evidence for "there-insertion" borrowed as a surfacy rule would be the existence in American Slovene data of only relevant equivalent sentences of the type:

(6) There is a man on the roof.

that is, sentences in which there-insertion does not interact with any other rules which change grammatical relations. Evidence for the rule of there-insertion interacting in derivational structure with other rules, such as "extraposition" and "subject raising" would be sentences like:

(7) It is believed that there is a man on the roof.

(8) There is likely to be a man on the roof.

Note that use of the term "borrowed" as opposed to "transferred" seems appropriate in Kegl's case since she is dealing with Type I individuals in the sense of Section 3 above. On the other hand, since in this paper we are dealing with Type II learners (who we hypothesize will become Type I learners) we have to extrapolate with caution. Kegl's concerns could serve as a point of departure for the study of syntactic rule transfer, but in our study we are dealing with a more complex situation involving paraphrase relations between "there-insertion" and other types of sentences.

5.5.2 Results of Syntactic Study

In discussing possible examples of syntactic rule transfer with theoretical linguists, the most intriguing learner-produced example discussed in the previous chapter seems to be sentence (9):

(9) un jour qui chaud,

literally "a day which hot", for the intended meaning "a hot day". Can this example be accounted for on the basis of syntactic rule transfer, or are there more surface explanations that are equally possible? First of all, we would like the reader to entertain the possibility that this example provides evidence for the learner using rules of English which do not appear on the surface. Our logic is as follows: what the learner appears to be doing is transferring from English part of the syntactic process of adjective formation, the process which is sometimes called "whiz-deletion" because in English it involves deletion of a wh-morpheme as well as the is form (in this case) of the verb to be. What is so intriguing about Sentence (9) is that the learner appears to be taking the English process only part way in his production of French, deleting the is (est) but not the wh-, or que morpheme. What is most intriguing to the theoretical linguists we have discussed this topic with is that this type of second-language data may play a role in the arguments concerning the reality of deriving adjectives from underlying relative clauses, a discussion beyond the scope of this paper. We are not here saying that we believe in the existence of this rule; that is, we are not claiming that any one particular linguistic analysis is necessarily correct on the basis of this discussion.

At least one other explanation that appears more surfacy is possible. It involves the deletion of surface elements, perhaps through a performance slip. The English-speaking learner obviously knows the phrase:

(10) a day that is hot.

It is possible that the learner may have directly translated this surface sequence into his French, dropping the is (est) through a performance error. In any case, one has to admit that in terms of the statistical criteria mentioned in the previous section, since this is the only case of its kind that occurs in our data, it is impossible to decide this issue at present; much more relevant data would have to be elicited.

A second possible example of syntactic rule transfer brought up in the previous chapter is the learner-produced sentence:

(11) Il veut moi de dire francais a il.

with the intended meaning: "He wants me to speak French to him." It is claimed in SSD that this sentence is the product of a misapplication in underlying structure of the rule of subject-raising to a class of verbs which cannot take it in the TL. SSD state that this appears to be a case of language transfer occurring in the syntactic derivation of a sentence, since the verb want in English can take subject raising in object position, thus producing the string: Someone wants someone else to do something. The facts for the TL, French, are quite different: the verb vouloir must take a that-complement if the subjects differ in the two clauses.

The reasons for the ambiguity of the analysis should be immediately transparent to the reader: it may be that sentence (11) is a direct surface translation of the English sentence:

(12) He wants me to speak French to him.

This example is treated extensively in Adjemian (1975):

> There are several problems ... [with the analysis proposed in the previous chapter. First, it is not clear that there is a rule of Raising to Object Position, even in English. To my knowledge there are at least three different proposals in current linguistic literature concerning these types of complement structures. To a large extent, the choice of one over the others depends on a personal preference for one theoretical position over the others. But even assuming the existence of such a rule, the analysis proposed in the previous chapter] may not be entirely correct. Sentence [11] is the only example they give of this type of structure. Before one could hypothesize the existence of such a rule in the learner's [italics, his] speech, one would need to find a broader sample base in the data. Specifically, it is imperative to show whether the learner uses such complement forms for the verbs of French that require this type of structure: Il me demande de parler francais, Il me conseille de parler francais, Il me commande de parler francais, etc. I would even be willing to admit as evidence in favor of of their analysis sentences where the processes of clitic movement had not applied, i.e. such "incorrect" structures as: Il conseille moi de parler francais, etc. Data should also be collected to establish whether the learner has generalized this "raised" complement structure beyond vouloir [italics, his]. Does the learner also produce sentences such as *Il espere moi de parler francais, (*He hopes me to speak French) where the verb in the matrix sentence, both in French and English requires a sentential complement? (Adjemian, 1976)

He then goes on to propose another possible analysis:

> An equally reasonable hypothesis is that the learner correctly [italics, his] applied a rule in his IL grammar, but that he incorrectly subcategorized the verb **vouloir** in his learner's lexicon. Such an analysis would predict that the learner will apply this particular rule each time he uses the verb **vouloir** in a complex sentence, or at least often enough to make it statistically valid. Data collection, again, might be one way to decide between these two alternative explanations. As it stands, I see no easy way to choose one over the other. But it is important to note that these two different analyses...make two different claims about the form of this speaker's IL. [The analysis, in the previous chapter...claims that this error is evidence for the transfer of a rule of English into the IL. [My analysis]...claims that the learner transferred a subcategorization feature from English into his IL. The first may result in describing a one-time occurrence, the second claims a regularity. The first claims grammatical transfer in a derivation, the second claims transfer in lexical features. These are two quite different positions... The one thing that these two competing analyses do have in common is their appeal to a learning strategy of transfer. (Adjemian, 1976)

Without necessarily granting the logic of Adjemian's statistical point, we decided to go over both sets of data (Time I and Time II) to try to answer some of these questions, as well as to try to find more unequivocal examples of subject raising in object position. Unfortunately, we found our data in this domain to be strikingly lacking, finding only three examples of verb complementation sentences, two like the sample sentence (11) and one, more or less correct French. We feel that this lack of examples must be in the nature of the task, e.g., no appropriate elicitation situations in the pictures. Again, this would be an ideal place to bring Corder's suggested elicitation procedures into play, in this case, perhaps having the children describe situations which elicit causative verbs.

A third example discussed in the previous chapter was the learner-produced sentence:

(13) Le sac a un trou dans le,

with the intended meaning: "The bag has a hole in it." This sentence seemed not only to involve incorrect pronoun placement, but also a syntactic rule, the rule of **there-insertion**, since it was argued that the learner not only had at his disposal the English base-type sentence:

(14) The bag has a hole in it,

but also a paraphrase sentence produced by the rule of there-insertion:

(15) There's a hole in the bag.

Significantly, it was predicted in the previous chapter that if a learner chooses the "there-insertion" paraphrase to express the intended meaning in French, he will avoid this type of ungrammatical preposition-pronoun sequence at the end of a French sentence, since French has an existential construction similar to the English one with

"there"; i.e., sentence (15) can be happily translated as Il y a un trou dans le sac.

Many complications have come into play with that analysis. First of all, one possible English paraphrase was ignored in the previous chapter.

(16) A hole is in the bag.

According to Kegl and Hankamer (personal communication), there is good syntactic evidence to connect (16) with (15), the there-insertion sentence. As for (14), within this theory, there is not good syntactic evidence to relate (14) to (15), though all three are paraphrases.

TABLE 8

Expression by Native English-Speaking Children of the Semantic Content: The bag has a hole in it

Child	Linguistic Content	Semantic Content
1	Her sandwich falls out of the bag . . . (and later) . . . She tries to get out her sandwiches but they're not there	Semantic content *not* necessarily presupposed
2	And the bag went (noise) . . . (and later) . . . and she opened it . . . and put her hand through and was wondering where her sandwiches had dropped.	Semantic content presupposed
3	The bag got a hole in the bottom.	Semantic content directly stated
4	And then it falls out . . . (and later) . . . She looks in her bag, and then she feels through, and then she . . . felt that there wasn't any, and then she . . . remembered . . . they fell out.	Sematic content presupposed

TABLE 9

Attempted Expression by French Immersion Children of the Semantic Content: The bag has a hole in it

Child	Time I	Time II	Pattern
1	Avoidance	Avoidance	Stability
2	Avoidance	Avoidance	Stability
3	Avoidance	Avoidance	Stability
4	Error (Syntactic)	Correct French*	Instability (Improvement)
5	Error (Syntactic)*	Correct French*	Instability (Improvement)
6	Error (Content)*	Correct French (different content)	Instability (Improvement)
7	Avoidance	Correct French*	Instability (Improvement)
8	Avoidance	Correct French (different content)	Instability (Improvement)

*These sentences involve possible syntactic rule transfer of the rule labelled "there-insertion".

Finally, the very important area of pragmatic conditions and their effect on choice of syntactic form is not considered in the previous chapter. If we look at paraphrases (14), (15), and (16), for example, and try to relate them to the meaning as shown to the children in picture form, it is not immediately clear that in English all three would be equally probable in that context. In addition, in the appropriate discourse situation where the existence of "the bag" is presupposed, the English sentence There's a hole in it, is a contextual paraphrase. These are empirical questions and it is clear that we have not even begun to scratch the surface with regard to semantic and pragmatic questions relating to second-language speech data.

Following Schumann's suggestion, we attempted to gather statistical data related to the learner-produced sentence (13), Le sac a un trou dans le. We decided to look at all the French data, both at Time I and Time II relating to the picture which elicited this sample error in order to see whether syntactic rule transfer occurs, if so, how many times in the data, and whenever it does occur, if the error in question is still produced.

Initially, in order to have a base-line so that we might be able to predict indended meaning, we obtained descriptions of this picture frame in English from four monolingual native-English speaking children in Seattle of the same age as the immersion children. We found that only one of the monolingual English-speaking children expressed this semantic content directly; he produced sentence (17):

(17) The bag got a hole in the bottom.

Most of the Seattle children avoided expressing this meaning directly, although, interestingly, it is presupposed by two of the remaining responses, but not by one. With child 1 in Table 8, the semantic content The bag has a hole in it, is not necessarily presupposed since the sandwich in question could have fallen out of the top of the bag. With child 2 and 4 in Table 5, on the other hand, it is clear that the bag in question indeed has a hole in it.

Three of the eight Toronto immersion children for whom we have both Time I and Time II French data for this picture frame, avoided expressing this information directly (see Table 9), though the presuppositional content of their responses remains to be investigated. Of the three children (i.e. Child 4, 5, and 6 in Table 9) who tried to produce this semantic content at both Times I and II, child 4 at Time I produced the syntactic error (13) Le sac a un trou dans le, while at Time II he produced an acceptable French there-insertion sentence, i.e. a possible case of syntactic rule transfer. Child 5 at Time I produced a there-insertion type sentence, but, surprisingly, with the sample ungrammatical sequence preposition-pronoun at the end of the sentence. This is a specific counterexample to the hypothesis of mentioned above, where it was predicted that this particular type of syntactic rule transfer would result in a "non-error"; that is, even with production of the there-insertion sentence, an error was in fact produced. Sentence (18) exemplifies this error:

(18) Il y a un trou dans le. ("There's a hole in it".)

At Time II, child 5 produced an acceptable there-insertion type sentence in French.

Child 6 at Time I produced a possible case of syntactic rule transfer, but with a slightly different content:

(19) Il y a un trou en bas.

This is, in essence, a "content" error in French, since (19) is a grammatical sentence though has a different meaning. The learner intended to say, it seems, "There's a hole in the bottom", but came out with a sentence whose meaning in the TL is: "There's a hole downstairs". This example shows the importance of taking intended meaning into account. At Time II, this same child, Child 6, produced a variant semantic content:

(20) Elle voit un trou dedans. ("She sees a hole inside".)

one which is grammatical in French and, importantly, could have been produced as a semantic variant by a native speaker of French. The other two children (Child 7 and 8 in Table 9) avoided this semantic content at Time I, but tried to express it at Time II. Child 7 produced a grammatical there-insertion type sentence, while Child 8 produced an even different but also grammatical variant:

(21) Elle trouve le trou dans le sac. ("She finds the hole in the bag.")

In ending what we hope has been a useful discussion as to some of the issues involved in looking at syntactic data in second-language acquisition, we note that we have again followed a suggestion proposed by Schumann (personal communication). In doing this we noted several things. First of all, one specific prediction was falsified: in this case, an error was in fact produced, even though the proper syntactic rule was seemingly transferred (cf. child 5 at Time I in Table 7). In addition, we have shown that the learners as a group have shown improvement over time, moving from avoidance and specific errors at Time I to avoidance and a lack of errors in this domain at Time II. That is, three of the children in Table 11 showed stability over time by using avoidance strategies at both Time I and Time II, while five of the children showed definite improvement over time. No backsliding was evident in the data we looked at.

Most importantly, perhaps, we have shown the great amount of variability in the attempt to express one semantic content; out of sixteen obligatory contexts (eight learners both at Time I and Time II), there were only eight attempts to directly produce the semantic content: The bag has a hole in it. In those eight attempts, the learners used seven different variants, five of those involving possible syntactic rule transfer. It seems to us that this is perhaps the quintessential example of how misleading a traditional error analysis can be.

5.6 IL SEMANTIC DATA

5.6.1 Some Theoretical Considerations

While statistical analysis of the data can, and often does, reveal patterns which might otherwise be hidden, over-reliance upon numerical analysis can also obscure important patterns. It is sometimes the case that in statistical studies, certain kinds of data are "thrown out", or not included in the analysis, under the term "perfor-

mance clutter". Performance clutter does not fit easily into the framework of statistical analysis being used, and so is eliminated from consideration. We feel that great care should be taken not to eliminate valuable data from consideration simply because it does not fit the numerical analysis being used.

In particular, when the investigator is able to isolate fairly specifically the meaning which the second-language learner is attempting to communicate, it is possible to begin making judgments about the speech production strategies used. Such strategies may be easily lost by statistical analyses which attempt to capture significant trends which hold among large numbers of learners. Speech production strategies appear to vary with the individual and the situation, and can best be studied at the level of the individual, where elements of the situation are known--elements such as the learner's knowledge of concepts which would probably be communicated in the situation given sufficient facility in the second language, and elements such as the learner's mastery of the required TL vocabulary.

In the examination of the semantic aspects of the interlanguage, then, we found statistical analysis to be less revealing than a more detailed examination of the individual's attempt to convey meaning within fairly limited contexts, such as one of the picture frames used in this study. In Table 10 we show the utterances which a particular picture frame elicited from six children at Time I and II. The children are here describing a picture in which a girl is standing in front of a slightly open cupboard, with her hand raised and touching the knob on the cupboard door. The learners show quite a bit of variability in their responses to this picture--variability which appears quite unusual in view of the relative uniformity of their descriptions of the other pictures in this story. However, that variability is at least partially explained by the fact that some of the learners do not yet know the vocabulary items needed to describe the picture. If we examine the learners' responses to the picture frame from the point of view of their attempt to convey meaning, we believe it is possible to distinguish some of the speech production strategies which are being used.

TABLE 10

Linguistic Results of the Attempt to Express the Concepts open and cupboard at Time I and Time II

Child		Utterance
1	Time I:	... voit *l'armoire**
	Time II:	... ouvre *l'armoire**
2	Time I:	Il regarde et il veut boire.
	Time II:	... ouvre l'armoire
3	Time I:	... ouvre la porte
	Time II:	... ouvre *l'armoire**
4	Time I:	... leve sa main ...
	Time II:	ouvre une armoire
5	Time I:	_____
	Time II:	... ouvre un _____
6	Time I:	_____
	Time II:	... ouvre le, la porte

*italicized words were supplied by the interviewer.

TABLE 11

Production Strategies Used in Communicating Meaning in the Cup Story*

Strategy Combination	Number of Occurrences	Production Strategy Used at Time I for Concept X	Production Strategy Used at Time II for Concept X	Pattern
I	8	*Semantic avoidance*	Correct French	Instability (Improvement)
II	3	*Lexical substitution*	Correct French	Instability (Improvement)
III	2	*Transfer*	Correct French	Instability (Improvement)
IV	3	*Topic Avoidance*	Correct French	Instability (Improvement)
V	2	*Appeal to Authority*	Correct French	Instability (Improvement)
VI	1	*Lexical substitution*	*Transfer*	Instability (Improvement)
VII	1	*Topic Avoidance*	*Lexical substitution*	Instability (Improvement)
VIII	26	Correct French	Correct French	Stability
IX	1	*Topic Avoidance*	*Topic Avoidance*	Stability
X	1	*Lexical substitution*	*Appeal to Authority*	Instability (Backsliding)
XI	1	Correct French	*Overgeneralization*	Instability (Backsliding)
XII	1	Correct French	*Semantic Avoidance*	Instability (Backsliding)

*Italicized production strategies refer to forms which have led to incorrect French.

5.6.2 Procedure and Results of Semantic Study

We looked at the Toronto children's responses to each picture frame in three "stories", or picture sequences, comparing each child's response at Time I and Time II. Data were available from only six Toronto children at both times. In addition, in order to isolate as clearly as possible the meaning which the L2 learner is attempting to communicate, we felt that it was important to establish also an English base-line of responses to the same picture frame.

We obtained several descriptions of the picture frames in English from four Seattle monolingual English-speaking children of about the same age as the Toronto children. We did this in order to obtain a base-line which we assumed would tell us which concepts the Toronto children would have communicated about this picture if they had had adequate linguistic skills in French.

The monolingual English descriptions of the said picture frame are remarkably uniform, varying only in verb tense. Three concepts were communicated in English: female, open and cupboard. If we take the English responses as a base-line to provide us with some idea of the concepts which would have been communicated in French, given mastery of the language, we may be able to analyze the production strategies used by the learners in their attempt to communicate concepts for which they do not have the correct French vocabulary; none of the learners seems to know the French word for the concept cupboard

at Time I, and some do not seem to know the word for open at Time I. What speech production strategies, then, do the learners use to attempt to communicate meaning in this situation?

Child 1 in Table 10 asks the interviewer to supply her with the word for cupboard ("comment se dit 'cupboard'?")--using a strategy which we might call the appeal to authority. Similarly, in other situation, this production strategy might result in looking a word up in the dictionary, asking the teacher for the required word, and so on.

Child 3 uses another production strategy at Time I. Since he doesn't know the word for cupboard in French, he uses the word porte, or door; presumably it seems to be close enough to the concept he is aiming for, so he uses it instead. We might call this production strategy lexical substitution--using a word in the target language which does not communicate exactly the concept which the learner desires, but which shares enough semantic elements in common with the desired concept to satisfy the learner.

Child 2 on the other hand, does not even attempt to communicate the concepts cupboard or open at Time I. Rather, he elects to describe other concepts related to the picture--concepts which he does have the vocabulary for. He says,

(22) Il regarde et il veut boire,

meaning "He looks and he wants to drink." This production strategy we might call semantic avoidance--not talking about concepts for which the vocabulary is not available, but rather, talking about related concepts and presupposing the desired concept.

Finally, Child 5 and Child 6 at Time I seem to deal with the problem by totally ignoring this picture frame in the narration of the story. The incident depicted in the picture is not crucial to the story-line, and can be left out. Child 5 and 6, therefore, both ignore the picture; they do not attempt to communicate concepts for which they have no vocabulary, nor do they attempt to communicate related concepts. It appears to be easier to just ignore a part of the situation which they are asked to describe. We might call this production strategy topic avoidance--totally avoiding communication about topics for which the vocabulary is not known.

If we examine the entire sequence of pictures of the stories we analyzed, what sorts of speech production strategies for the communication of meaning emerge in situations where the learner has not yet mastered the correct L2 form? As was pointed out above, we have already isolated four production strategies from the analysis of the picture frame: (1) appeal to authority, (2) lexical substitution, (3) semantic avoidance, and (4) topic avoidance. We hypothesize that all four of these production strategies are more or less conscious efforts on the part of the learner to communicate meaning in areas he knows his French to be weak. That is, if the learner is questioned about his use of a particular form ((or forms) which result from one of these four production strategies, we predict that he is most likely to admit that he does not know the correct L2 item to use for the desired concept.

In addition to these four production strategies, two other production strategies--transfer and overgeneralization--seem to be used by these L2 learners in the attempted communication of meaning in other picture frames we examined. These strategies seem to be much less

conscious than the other four. As regards the term "transfer", it is here being used in a rather specialized sense to mean an unconscious use of NL lexical forms translated literally into the TL structure, in the course of the attempt to communicate meaning in the TL. Transfer in this sense is shown in picture frame I of the cup story where marcher dans is used as an equivalent of "walk into", rather than the French enter dans (literally "enter into"). Here a production strategy of transfer seems to be used, in that the verb marcher has been taken to be a direct equivalent of "walk", and the equivalent of the English phrase "walk into" is used, rather than the French expression enter dans. We hypothesize that the learners are not aware at this stage that a different French expression exists. If this is true, then they are likely to be more or less unconscious that they have made an error. We hypothesize that if the learners are questioned about their use of marcher dans, they will show that they are unaware that it is incorrect French.

The use of the production strategy of overgeneralization may be similarly unconscious. The term "overgeneralization" is being used here to mean the use of French forms in inappropriate contexts. An interesting example of this type of overgeneralization is produced at Time II by Child 5:

(23) Les quatre tasses se tombent. (The four cups fall down.)

In producing this form, he uses the reflexive "se" incorrectly, presumably by overgeneralizing from other French verbs. In cases like this, we hypothesize that the learner may not be aware that this is an incorrect French form; he is likely to believe that his IL production is correct by analogy with other French forms.

In making this division between production strategies which are more "conscious" (appeal to authority, lexical substitution, semantic avoidance and topic avoidance), and production strategies which may be more "unconscious" (transfer and overgeneralization), we are hypothesizing that two very different types of cognitive processes may be used in the expression of meaning in the L2. When the learner uses the more conscious strategies, s/he is hypothesized to be more aware of a lack of ability in the TL. The use of the more unconscious strategies does not imply the same necessary awareness of lack of ability. In fact, it is quite possible for the production strategies of transfer and overgeneralization to result in "correct" TL forms which communicate the desired concepts, while this is not possible for the more "conscious" strategies of substitution and avoidance.

Note: the speech production strategies isolated in this study appear to coincide with results independently obtained by Varadi (1973). Varadi describes four kinds of avoidance:

(1) formal replacement

a. word coinage--"airball" instead of "balloon"
b. circumlocution and description--"special toys for children", or "they were filled by gas", also instead of "balloon"

(2) message reduction

c. generalization which results in loss of detail--"go" instead of "dash off"
d. approximation--"rope" instead of "clothesline"

Varadi also describes cases of message abandonment, where the speaker doesn't say anything rather than make a mistake.

There is clearly some overlap in the two typologies, as illustrated by the data below:

The present study	Varadi
Appeal to Authority	not reported
not reported	Formal Replacement
Lexical Substitution	Message Reduction
Semantic Avoidance	not reported
Topic Avoidance	Message Abandonment
Transfer	not reported
Overgeneralization	not reported

Using our own typology, it is possible, within the context of the Cup Story, to obtain an overall picture of the degree of stability and instability over time in the learners' use of these six production strategies. We analyzed the semantic content of the verbs and the direct objects used in the description of the Cup Story at Time I and Time II for each individual in response to identical stimulus frames. Thus, in describing the picture, we see that Child 1 uses a strategy of semantic avoidance in choosing a verb at Time I, but uses the correct TL form at Time II; thus, from Time I to Time II, she shifts from semantic avoidance to correct French in her choice of verbs for this picture frame. Child 2 shows the same shift in his use of the verb from Time I to Time II, from semantic avoidance to correct French. We attempted to tabulate the number of shifts of this type, from semantic avoidance to correct French, for each individual in response to identical stimuli, and found a total of eight shifts of this type.

Table 11 shows the overall patterning of stability or instability in the use of production strategies from Time I and Time II. We see that there are eight shifts from the use of semantic avoidance to correct French in communicating a given concept, three shifts from lexical substitution to correct French, and so on.

From Table 11, it is clear that at Time II, the learners overall are using correct French much more often than at Time I. Strategy Combinations I though V show a definite instability between Time I and Time II--an instability which can clearly be called improvement, i.e. a movement towards correct French in the learner's attempt to communicate about an (inferred) desired concept. Strategy Combinations VI and VII might also subjectively be considered to be a movement toward correct French. Note example (24):

(24) Time I : Un fille est dans la cuisine.
("A girl is in the kitchen")

Time II: Une petite fille march dans la maison.
("A little girl walks into the house")

which is representative of Strategy Combination VI, a shift from lexical substitution ("be" for "enter") to transfer (discussed above). Note example (25):

(25) Time I : ∅
Time II: ouvre la porte ("open the door")

which is representative of Strategy Combination VII, a shift from topic avoidance to lexical substitution ("door" for "cupboard").

Strategy Combinations VIII and IX indicate stability in the learners' IL system, though different effects are achieved in each case. In the case of VIII, correct French is used by the learners both at Time I and Time II. In IX, however, the learners avoid the topic in both time periods. Concerning Strategy Combination X, we believe that it indicates another type of instability, specifically a type of backsliding, since to ask for the answer may show less proficiency on the part of the learner than lexical substitution. Strategy Combinations XI and XII evidence another type of instability, clearly a type of backsliding away from the TL norm. These latter two Combinations may be taken to be evidence of a classical type of backsliding, a reappearance or reemergence in IL speech of forms which one might have thought were already eradicated. Such reemergence at Time II might be due to a variety of personal or emotional factors which we cannot even begin to speculate about at this point.

One thing that we have shown in this chapter is that there is stability over time in the English-French IL we have been describing. A key issue in IL studies in SLA concerns whether such stabilization is indicative of a temporary plateau or, instead, of permanent fossilization. This is a particularly pivotol issue in SLA and applied linguistics: How is one to judge whether a particular IL form which has remained in learner speech for x amount of time will subsequently be eradicated or not? For colleagues interested in practical applications, the answer will help determine the pedagogical remedy suggested, if one is. Theoretical resolution of this question will help define IL and SLA. To begin to try to get a handle on this issue, we turn in the next chapter to a general discussion of central concepts relating to the phenomenon of permanent fossilization.

VI. TWO PERSPECTIVES ON FOSSILIZATION IN INTERLANGUAGE LEARNING*

6.1 INTRODUCTION

In this chapter we focus on trying to describe some central variables relating to fossilization in IL and SLA. As pointed out in the Introduction and Chapter 3, fossilization may be empirically described by looking at forms in IL speech that remain over time, despite all attempts to eradicate them. In a general fashion, fossilization in IL learning may be defined as a cessation of further systematic development in the IL, often far from expected target language (TL) norms.

The starting point for considering fossilization is its original statement in (Selinker, 1972), as revised in Chapter 3 above. The original statement is summarized as Table 12. Since the original formulation of the IL hypothesis was completed in 1970, several important proposals have been made concerning fossilization. We now briefly review some of these proposals:

TABLE 12

Summary of "Fossilization" as Originally Presented in Selinker (1972)

I. HYPOTHESIZED CONSTRUCT

A. Data Orientation: "Fossilizable linguistic phenomena are linguistic items, rules, and subsystems which speakers of a particular NL will tend to keep in their IL relative to a particular TL, no matter what the age of the learner or amount of explanation and instruction he receives in the TL" (p. 215).

B. Explanatory Attempt: Fossilization is "a mechanism which is assumed ... to exist in the latent psychological structure described above" (p. 215). "We assume that there is such a psychological structure ... (within which we assume 'interlingual identifications' exist) ... and that it is latent in the brain ... (that it is a) ... genetically determined structure ... (and that it is) ... activated ... whenever ... (learners) ... attempt to produce a sentence in the second language, that is, whenever they attempt to express meanings, which they already have, in a language which they are in the process of learning" (pp. 211 and 212).

C. "Backsliding": "Fossilizable structures tend to remain as potential performance, reemerging in the productive performance of an IL even when seemingly eradicted" (p. 215). "Whatever the cause, the well-observed phenomenon of 'backsliding' by second language learners from a TL norm is not, as has been generally believed, either random or toward the speaker's NL, but toward an IL norm" (pp. 215 and 216). "A crucial fact, perhaps the most crucial fact, which any adequate theory of second language learning will have to

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* This is a revised version of a paper on fossilization which originally appeared in Interlanguage Studies Bulletin, 1978, 3.2, 143-191. The original paper was co-authored with John Lamendella.

explain is this regular reappearance or reemergence in IL productive performance of linguistic structures which were thought to be eradicated. This behavioral reappearance is what has led me to postulate the reality of fossilization and IL's" (p. 216). (Several phonological and grammatical examples of backsliding phenomena are presented on pp. 215 and 216.) "It should be made clear that the reappearance of such behavior is not limited to the phonetic level" (p. 216).

D. Fossilization and "Errors": "This connection ... (between fossilization and errors) ... is not intended since it turns out that 'correct' things can also reemerge when thought to be eradicated, especially if they are caused by processes other than language transfer" (p. 216).

II. RESEARCH QUESTIONS PROPOSED

A. "How can we systematize the notion fossilization so that from the basis of theoretical constructs, we can predict which items in which interlingual situations will be fossilized?" (p. 222).

B. "How do I recognize fossilizable structures in advance?" (p. 222)

C. "Why do some things fossilize and others do not?". (p. 222) (An example is given of the "non-reversibility of fossilization effects for no apparent reason" [p. 222].)

(A) Vigil and Oller (1976) have made explicit claims regarding the source of fossilization, as well as the point at which fossilization is likely to arise. In their paper, an emphasis is placed on external interaction factors that serve to either "reinforce" or "destabilize" the current rule structures employed by the learner to exchange information (i.e., what they call the "cognitive" dimension) and to express a notion of self in relation to "valued" others (i.e., what they call the "affective" dimension):

> It is argued that expected negative feedback on the cognitive dimension of language usage is the principal de-stabilizing factor in the development of learner grammars. When the configuration of feedback to the learner becomes predominantly expected positive feedback on the cognitive dimension it is predicted that the learner's level of proficiency will tend to fossilize. Thus, the tendency toward fossilization of either correct or incorrect forms is governed by feedback principally on the cognitive dimension. However, if feedback on the affective dimension is not predominantly as expected, and predominantly positive, the feedback on the cognitive dimension will lose much of its force. (Vigil and Oller, 1976: p. 281)

(B) Schumann (1975), as an aspect of the "Pidginization Hypothesis," argues that a pidgin-type system with a simplified grammar will tend to arise whenever the only function served by the pidgin-type system is "communication":[45]

> Pidginization occurs when a language is restricted to the communication of denotative referential information and is

> not used for integrative and expressive functions. Restriction to the communicative function results from the learner's social and/or psychological distance from the target language group. (p. viii)

Schumann has proposed that for second language learners, the point at which their IL systems fossilize is directly controlled by the cessation of the learner's acculturation into the target society. Regarding the source of fossilization, he has also suggested:

> Within this framework, pidginization in second language acquisition can be viewed as initially resulting from cognitive constraints and then persisting due to social and psychological constraints. Hence, early second language acquisition would be characterized by the temporary use of a non-marked, simple code resembling a pidgin. This code would be the product of cognitive constraints engendered by lack of knowledge of the target language. The code may reflect a regression to a set of universal primitive linguistic categories that were realized in early first language acquisition. Then, under conditions of social and/or psychological distance, this pidginized form of speech would persist. (Schumann, 1976: p. 406)

Central to this approach seems to be the belief that fossilization is a temporary plateau in IL learning which may be surmounted by the establishment of higher degrees of integrative social motivation and/or by a decrease in the psychological distance between the learner and the target society.

(C) Adjemian (1976) in discussing the nature of fossilization views this phenomenon in terms of a system-wide loss of what he calls permeability, stating:

> Perhaps the salient characteristic of ILs is that they are linguistic systems which by nature are somehow incomplete and in a state of flux . . . The penetration into an IL system of rules foreign to its internal systematicity, or the overgeneralization or distortion of an IL rule, is one of the characteristics which defined ILs as being different from all other natural language systems. The property of ILs which allows this penetration or generalization I will call the permeability of ILs. (Adjemian, 1976: p. 308)

Adjemian's view (as well as the original position of Selinker [1972]) seems to entail a belief in the virtual inevitability of the adult learner's failure to achieve TL norms and the probable persistence of fossilized linguistic features as a permanent condition.

(D) Scovel (1969, 1976, 1977) has focussed on the source of fossilization and has argued in favor of the view that, in those individuals who begin to learn the TL after the time of puberty, permanent fossilization far from TL norms is in fact inevitable. Scovel believes the basic cause to be a loss of brain plasticity associated with advancing age such that, after the time of puberty, it becomes increasingly more difficult to attain TL norms, particularly in phonology. Scovel stresses the inability on the part of all adult learners to overcome a foreign accent, and convincingly argues the need to consider more than external variables:

> ...the basic problem with environmental explanations is that they do not account for the fact that the very best adult learners exhibit few, if any, syntactic errors, while no adult learners, even the very best, escape without an accent. In other words, why do sociocultural or psychological variables intervene at the phonological level but not at the level of syntax, which, in terms of linguistic theory, is much more complex and abstract? For this reason, we must abandon explanations founded on nurture and look to those grounded on nature. (Scovel, 1977: p. 39)

We can agree with Scovel that any adequate explanation of fossilization must encompass inherent learner characteristics. It must also confront the issue of whether there is in fact a span of time during which attainment of TL norms is facilitated and after which complete learning is difficult or impossible. In our work, we follow the distinction of Lamendella (1977a) between a **critical period** relevant only to primary language acquisition, and a **sensitive period** during which the potential for successful second language acquisition is enhanced, and after which fossilization far from TL norms is highly probable.

(E) In chapter 4 above, we suggested that some salient properties of IL learning in adults may apply to child second language acquisition as well. Our data suggest that under certain conditions the child's progress in a second language may be as susceptible to the effects of fossilization as an adult's certain rules may fossilize:

> When the second language acquisition is non-simultaneous (with the acquisition of the child's first language) and also when it occurs in the absence of native speaking peers of the target language. (Chapter 4 above)

Also drawing from the Toronto French Immersion data, in chapter 5 we addressed the source of fossilization, attempting to relate it to patterns of stability and instability over time for certain types of IL forms in child second language learning.[46]

It seems clear to many researchers that children learning second languages constitute a pivotal condition for gathering data which could help resolve many important theoretical questions. We believe that this is particularly true for the issue of fossilization if it is in fact the case that adults fossilize at some distance from TL norms, and that some children do while others do not fossilize before attaining native like TL competence. The difference between the two groups of children may arise from the interplay of variables which may be productively studied in a particular piece of research on fossilization in child second language learning.

We feel that some of the seemingly contradictory claims discussed in this section regarding fossilization should not be considered to be in competition, but actually address different facets of a very complex phenomenon. Some of these proposals are primarily directed at the source of fossilization and some at the point at which fossilization can be expected to arise. None of the authors listed are totally clear on this issue. Vigil and Oller as well as Schumann seem to be primarily concerned with the source of fossilization, as well as with the point at which fossilization is likely to arise. Scovel's interest (as well as that of Chapter 5 above) is primarily the source, with Adjemian's primarily the nature of fossilization. None of the authors, it is important to note, address more than limited aspects of a very complex phenomenon.

6.2 SOME ONTOLOGICAL FACTORS

In the remainder of this chapter we will outline some important factors which should be considered in the study of fossilization. We end the chapter with an attempt to systematize our understanding of fossilization in terms of the nature of, source of, objects of, manner of, initial point of, persistence of, and candidates for fossilization.

In considering the source of fossilization, we have to state categorically that it is our belief that no single ontological factor--neither feedback on communicative success, nor acculturation into the target society, nor maturational stage--in and of itself could possibly account for more than very limited aspects of fossilization in attempted target language (TL) learning.

There are many reasons to believe that it is the interactive needs of particular learners that may play a determining role in the point at which fossilization is likely to occur. Teachers could become sensitive to the interactive needs of the students they deal with, perhaps by asking themselves and other teachers in their surroundings if fossilization in particular learners appears to take place within well-defined contexts. Is time a crucial variable for some learners, with some learners requiring more time than others to accomplish the same learning task? Does good pronunciation on the part of particular sorts of learners facilitate or inhibit the acquisition of correct TL syntax? Just how does adequate TL syntax appear to correlate with fossilized pronunciations for particular sorts of learners?

Schumann (1976) has stressed the psychological distance of the learner from the target society and many other researchers have shown that motivation, and other variables play an important role in the level of success achieved in the classroom. Does the highly motivated student, in fact, appear to fossilize less than other students?

It is important also to pay attention to the same learner in different contexts and situations. Are some students hardly indistinguishable from native speakers of the TL when concentrating on highly stylized topics, seemingly relying heavily on formulas.[47] Whereas, in discussing or writing about highly emotional or, indeed, highly abstract topics do these same learners appear to produce more fossilized forms?

Obviously a great many circumstances could interfere with the actualization of an individual's capacity to continue progress in an IL. Someone with minimal, nonexistent, or negative motivation to learn will most likely never come to communicate successfully in a second language, even given a modest degree of incidental learning. Furthermore, Bickerton (1975: p. 173) is quite right to wonder if a major source of what has been called fossilization is simply the fact that the individuals in question did not have sufficient opportunity to learn, and arrived at a learning plateau principally for that reason. In fact, as the U.S. immigrant situation has shown, it is possible to exist for even fifty years on the fringes of a target society, with resulting minimal occasion to use the TL, and a concomitant lack of opportunity to continue learning in one's IL. To complicate matters, there are surely idiosyncratic differences between learners such that some need more practice than others to accomplish the same learning task. Regretfully, there has been no method established to determine in advance how much a given individual would ideally need to practice

in order to fully master given TL linguistic-features and adopt them into his or her IL, although perhaps such measures might be developed.

The attempt described in Bruzzese (1977) to test the limits and persistence of long-standing fossilization, that is, the conscious attempts to de-fossilize second language learners should prove highly interesting. It is not obvious, however, how from such attempts one could go about drawing valid conclusions leading to predictions for other individuals encountered. Increasing the number of such individuals studied could at best provide only a group average and/or the standard deviation from the mean, both of which would still constitute inadequate bases for making realistic predictions about particular other individuals in advance. Without some prior estimate of how much practice would constitute a sufficient amount for a given individual to de-fossilize, it is also not clear how one can draw inferences from an unsuccessful de-fossilization attempt for that individual regarding whether fossilization is a permanent condition in some adults. Successful de-fossilization attempts, should they occur, would post hoc indicate that enough practice has been achieved and that, for that individual in those circumstances, fossilization was not permanent. Be that as it may, it is most important to note that there appear to be many cases when individual learners have clearly had sufficient opportunity to use and practice the TL in communicative interactions and nevertheless have persisted with an IL fossilized far from the TL norms. For this reason if for no other, fossilization cannot be disposed of as a theoretical issue as a mere lack of opportunity to learn, as Bickerton appears to want to do.

A further complication in establishing whether an individual did actually have adequate opportunity to learn is the inadequacy of merely counting the number of second language interactions that individual had had with TL natives, with non-TL natives, the number of hours spent conversing, the quantity of corrective feedback directed at the learner, etc. More important in our view is the actual use to which the neural information processing systems responsible for IL learning put those interactions. Whether the learner actively uses the verbal and nonverbal responses of native speaker interlocutors as reflections of the (in)adequacy of the current IL grammatical rules cannot be automatically assumed to occur for all learners under all circumstances. Moreover, not just any type of interaction in the TL is a fruitful basis for Secondary Language Acquisition, as against the usually less desirable Foreign Language Learning (see Lamendella [1977a] for the distinction). That is, if there is one lesson that has been learned by the second language teaching profession, it is that in order for most students to succeed in learning to communicate in the TL, there must be some real-world significance for a student in saying things one way rather than another.

It is our view that feedback presented by opportunities to learn cannot in itself be responsible for the degree of IL learning which takes place nor for the nature nor persistence of the fossilization phenomena which we discover in actual learners. It is our belief that feedback presented by opportunities to learn are relevant vis-a-vis the existence of particular sorts of inherent learner characteristics which we are only beginning to investigate.

Here, however, it is possible to come up with five tentative conclusions. [For more detail, see Selinker and Lamendella, 1978]

(1) Internal factors constitute the domain of control over onset of fossilization.

(2) The Interactive needs of particular learners constitute the most direct source of fossilization and may be considered to provide the fundamental lower bound on fossilization.

(3) Selected portions of the learner's utterances may be differentially reinforced via feedback.

(4) Interlanguage learning cannot be accounted for solely in terms of a need for particular sorts of feedback.

(5) Reinforcement may take place separately for communicative competence versus grammatical correctness.

6.3 TWO PERSPECTIVES ON FOSSILIZATION

We develop our consideration of fossilization from two perspectives:

(1) what we will call a **Macrobehavioral Perspective**, an approach which characterizes the systematicity attributable to publicly observable second language speech data

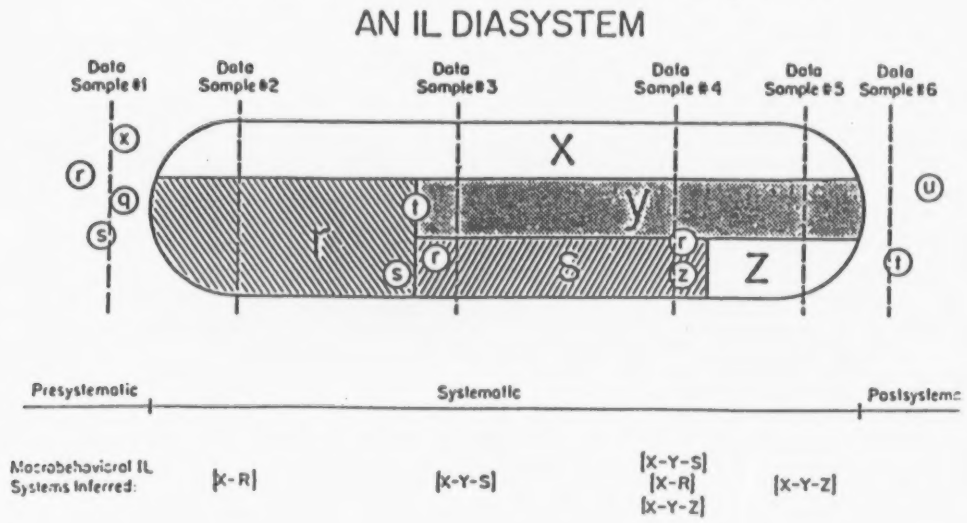
(2) what we will call a **Neurofunctional Perspective**, an account of interlanguage (IL) learning based on a characterization of the systematicity attributable to neurolinguistic information processing systems (cf. Lamendella, 1977a, 1977b; Selinker and Lamendella, 1978).

6.3.1 A Macrobehavioral Perspective on Fossilization

The evidential basis for the macrobehavioral perspective we will outline here is derived from observational samplings of hypothetical second language speech data, as well as from a variety of methods for discovering both the linguistic features characteristic of the learner's speech at the time of the sampling and the systemic organization of these features. FIGURE 1 presents an oversimplified account of the longitudinal picture inferrable from six data samplings at six "moments" in acquisition-time. This figure will be the basis for our illustration of one manner in which the hypothetical speech data of a typical second learner may be interpreted from the macrobehavioral perspective. Each of the six data samples will be discussed below in terms of these linguistic features and inferred Macrobehavioural systems attributable to the learner at that point in time. Additionally, in discussing each data sample we will indicate, under the heading "context", some pertinent details about the organization and use of these features as needed to illustrate our proposals concerning fossilization. Finally, for each hypothetical data sample, we will briefly discuss "conclusions" inferrable from that data sample considered in light of previous samples.

FIGURE 1

Illustration of a Macrobehavioral Perspective



1. FIRST DATA SAMPLE

(a) Feature Observed: If we observe IL features x, s, r, q:

(b) Context: In this early stage based on the learner's current abilities to engage in TL communicative interactions, speech production is highly variable and unsystematic. The learner shows perseveration, hesitation, abundant use of gestures, and reliance on the NL. User of TL linguistic features fails to achieve an 80% correct usage acquisition criterion.

(c) Conclusion: We may identify this initial point in the learner's IL acquisition as a presystematic period which fails to exhibit a coherent IL grammar as the basis for TL communicative interactions.

2. SECOND DATA SAMPLE

(a) Features Observed: If we observe IL features x, r:

(b) Context: Features x and r are used in a consistent, systematic fashion. Most observed communicative attempts tend to be directed through these linguistic features. The learner exhibits greater fluency and improved communicative competence.

(c) Conclusions: Linguistic features x and r comprise the parts of the first IL system. The features s and q were not observed in this sample and may provisionally be considered to have been superseded by this system. The features x and r, having been found in two successive data samples may be considered to have achieved relative stability as linguistic features; however, since the same IL system was not observed across more than one sample, we may not posit a generalized stability for the entire system.

3. THIRD DATA SAMPLE

(a) Features Observed: If we observe IL features x, y, s:

(b) Context: The features y and s are found to share approximately the linguistic functions previously carried out by the feature r.

(c) Conclusions: Feature r has been replaced in the learner's IL by the new features y and s in what amounts to a restructuring of the IL to create a new, more complex system. Feature x has been found in three successive data samples, and thus has maintained its relative stability.

We can see that IL learning involves a dynamic evolving system, which we will call an IL diasystem in our terms (see FIGURE 1). Importantly, the segmented oval of FIGURE 1 may be restructured, at specifiable points in time, by the accumulation of new linguistic features, the deletion of old features, and various types of restructuring processes which change the character of the learner's IL.

4. FOURTH DATA SAMPLE

(a) Features Observed: If we observe IL features x, y, s, r, z:

(b) Context: The linguistic feature s may be observed to be intermittently varying with both a new feature z, and with the superceded feature r. Linguistic features x, y, and s still comprise the IL system of (3), which continues to be the principal system employed by the learner for TL communicative interactions. However, other IL systems are found to be operating in alternation with (3) at this point in time.

(c) Conclusions: Feature r, a component of the IL system inferred from Data Sample #2 has reappeared, and may be considered a reemergent form (cf. Selinker, 1972). IL system of (2) has reappeared, and may be considered a re-emergent system. Feature z may tentatively be considered to be a pre-emergent form which participates in the pre-emergent system.

This hypothetical data sample raises the important issue of variation. From the macrobehavioral perspective, we feel it is probably reasonable to try to provide an account of alternative linguistic forms and systems in terms of some sort of variable rule of the type proposed by Labov (1965), and as applied to second language acquisition by L Dickerson (1974, 1975). However, the element which has remained missing from many approaches to variation is recognition that there is more at issue in the identification of alternative linguistic features than variable rules. Systems of any sort, by definition, are emergent gestalts greater than the sum of their parts. In essence, it is not linguistic rules which are varying, but rather linguistic (IL) systems. Some means must therefore be developed to embed the notion of variable rules into an explicit account of alternative system.

Our illustration has thus far identified three important types of variation, which we now make explicit:

(i) developmental variation across time as the IL is restructured in order to better accomplish the task at hand.

(ii) non-central variation for the same "moment" in acquisition-time as re-emergent and pre-emergent forms and systems alternate with the forms and systems characteristic of the learner's central linguistic competence.

(iii) unsystematic variation in which particular speech forms are produced in an inconsistent ad hoc fashion without being part of a coherent system.

There is yet another important type of variation characteristic of language acquisition which is difficult to recognize or describe from the macrobehavioral perspective, and which we will consequently discuss in the context of the neurofunctional perspective. Suffice, it to say here that any adequate formal account of the many sorts of variation found in second language speech data is an essential part of any adequate theoretical account of second language acquisition.

5. FIFTH DATA SAMPLE

(a) Features Observed: If we observe IL features x, y, z:

(b) Context: Features x, y, and z are used together in a systematic fashion, and the vast majority of attempts at TL communication are carried out based on these features. The learner is fluent and has achieved a relatively high level of communicative competence. Nevertheless, the learner may be observed to produce language transfer forms characteristic of the NL, both "correct" and "incorrect" TL forms, as well as forms characteristic only of the IL.

(c) Conclusions: The IL system (x-y-z) has become the central IL system and is the only system inferrable from this data sample.

6. SIXTH DATA SAMPLE

(a) Features Observed: If we observe IL features x, y, z, and u, t;

(b) Context: The IL system of (4) continues to be the central system of the learner. The new features u and t, pre-emergent forms, occur sporadically in an unsystematic fashion and are not part of any coherent system.

(c) Conclusions: The IL system seems to have sustained a generalized stability and it is possible that, this system could remain the central system of the learner, signalling an end to the period of permeability of the IL system. It is this generalized stability of the IL diasystem which is the manifestation of "fossilization" from the macrobehavioral perspective. Features u and t are indicative of a post-systematic period which novel linguistic features may come and go without being integrated into the principal linguistic system for TL communication, and without leading to the systematic restructuring of the IL.

6.3.2 A Neurofunctional Perspective on Fossilization

Our conclusions in this section concerning fossilization in neurofunctional systems (NFSs) for language acquisition and utilization are given in the context of our current understanding of the general principles of the phylogeny and ontogeny of human information processing equipment. The neurofunctional perspective, in our view, provides a comprehensive basis for discussion of many issues in second language acquisition beyond fossilization, e.g., putative critical periods and sensitive periods, both of which involve a 'biological' component that macrobehavioral accounts have been reluctant to confront.

We postulate that it is the executive functions of NFSs which initially direct new acquired behavior (see Lamendella, to appear -b; cf. the "executive control programs" of Vigil and Oller, 1976). The Executive component of an NFS attempts to construct new information structures making up new knowledge and skill. In the strict sense, there are no "Language Acquisition Systems (LAS)" or "Language Acquisition Devices (LAD)" separate from the general set of neurolinguistic NFSs. In our view, the executive functions of these NSFs are responsible for both learning and application of acquired knowledge and skill structures to behavioral tasks (via utilization procedures).

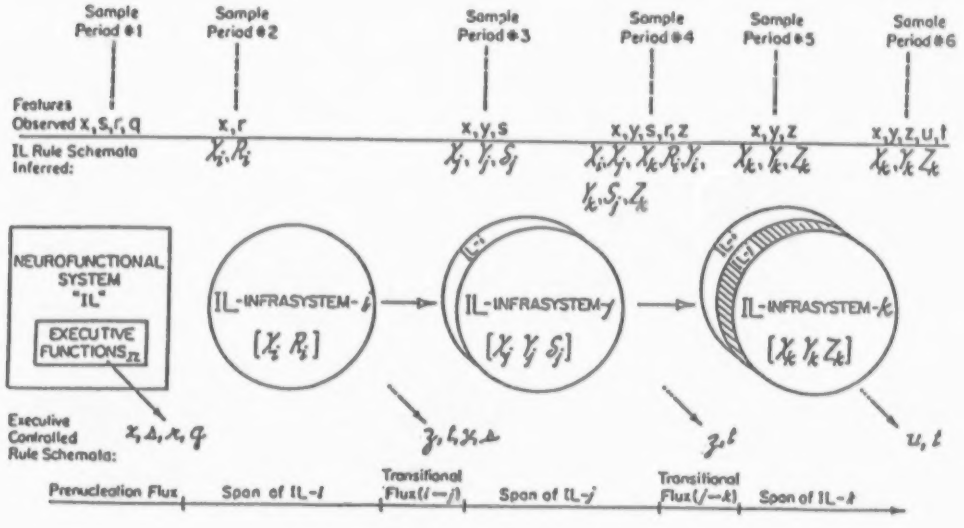
Lamendella (1977) called the monitor mode of the systems operation the condition in which the executive exercises prime control over behavior within that NFSs functional domain [cf. the conscious "monitor" of Krashen (1977)]. Operation in the monitor mode is 'costly' in terms of the processing time required for carrying out a given procedure and involves the concentration within the NFS of a large quantity of energy resources at the expense of other on-going activities. For behavior sequences which are required on a regular basis, it seems that the executive of each NFS operates under and imperative to opt out of the monitor mode when possible, two means of doing so being common. First, the executive of an NFS may direct the automation of behavioral sequences to the lowest level NFS within its hierarchy capable of carrying out the task (for example, many facets of driving a car are commonly carried out by lower level automated subroutines; see Lamendella, 1978, for discussion). Secondly, in order to avoid the 'costliness' of the monitor mode, the executive of an NFS can direct the construction of an infrasystem with ILs being a type of NF infrasystem (see Lamendella, 1977a). Infrasystems may be viewed as task specific programs constructed by an NFS in accordance with the acquisition heuristics of the executive and regulated by the executive's utilization procedures. Once an infrasystem becomes operational, the NFS acquires the potential to process information in the infrasystem mode, with the infrasystem ordinarily having prime control over the behavior sequences in question, but subject to the power of the executive to reinstitute the monitor mode.

From this perspective, primary language competence of an individual is realized in the Nervous System as infrasystems (more accurately, hierarchies of infrasystems). These acquired information structures are constructed during the process of primary language acquisition in conjunction with the progressive maturational stages of the responsible NSFs, as regulated by the genetic material. When the need arises to acquire a nonprimary language after the period of primary language development, it is almost certainly these same NFSs which (with varying degrees of efficiency and completeness) direct the construction of an alternative set of nonprimary interlanguages as the means of producing and comprehending speech in TL communicative inter-

actions. IL infrasystems develop progressively, in infrastages, with a more advanced infrasystem taking over prime control of speech behavior from a surpassed infrasystem found to be inadequate (see Lamendella, 1977a for further discussion).

FIGURE 2

Illustration of a Neurofunctional Perspective



There are many reasons to believe that linguistic competence in both NL and IL involves distinct autonomous sets of infrasystems for speech production and for speech comprehension in either NL or IL performance. This ignorance is not surprising since, form the macrobehavioral perspective, it is extremely difficult to apply the standard methods of gathering speech data samples to inferences about the systemic basis for speech comprehension abilities. Most investigators of language acquisition have simply ignored the problem, and the very term "language acquisition" is typically misapplied to refer only to the manifestation of language production capabilities in overt speech performance. While this problem is certainly not irrelevant to explaining fossilization, lack of time, space, and understanding preclude our doing more than mentioning the problem.

For the purposes of our hypothetical illustration of IL learning viewed from the neurofunctional perspective, we will consider IL infrasystems to be made up of IL rule schemata, which can be thought of as the neurofunctional analogs of psychologically real linguistic rules. In FIGURE 2, the rule schemata posited for each of the six Data Sample Periods are identified by script upper case letters (e.g., X, Y, Z) with subscripts indicating the infrasystem which a given rule schema is part of (e.g., X_i Y_j Z_k). IL infrasystems within a progression of infrasystems for the same behavioral task will be identified as, e.g., IL-T, IL-j, etc., with the rule schemata comprising them given in brackets (e.g., IL-k X_k Y_k Z_k). Since the neurofunctional approach we are advocating is based in part on the same second language speech data as the macrobehavioral approach, subsequent discussion of our example from the neurofunctional perspective will assume access to the same six hypothetical Data Samples, contextual inferences, and conclusions of the preceding section. For each Data Sample Period, we will list: (a) Infrasystems Posited; and (b) Conclusions.

1. FIRST SAMPLE PERIOD (Features Observed: x, r, s, q)

(a) ILs posited: none

(b) Conclusions: The observed speech data from Data Sample #1 result from a period of IL learning before a first IL infrasystem has been constructed and become operational, i.e., before "nucleation" has occurred; see Pike (1969). It may be assumed that speech behavior during this period is under the direct control of the executive functions of the NFSs responsible for language processing. We will call this period during which the monitor mode obtains (that is, when the utilization procedures of the executive are in control of speech behavior) the presystematic period of the macrobehavioural perspective, a period of prenucleation flux.

2. SECOND SAMPLE PERIOD (Features Observed: x, r)

(a) ILs posited: IL-T [X_i R_i]

(b) Conclusions: A first infrasystem for use in communicative interactions with TL speakers, IL-T, has become operational and been established with prime control over the production of speech in TL interactions. Since the rule construct X_i operates within IL-i, it is not considered to be the same rule schema as the executive controlled posited for Sample Period #1. Thus, even though, from the macrobehavioral perspective, the linguistic feature z has achieved relative stability, no such stability. Is posited from the neurofunctional perspective. IL-T sustains a generalized stability during the period when it is the most advanced infrasystem involved in TL communication, the period being called the span of IL-i.

Schumann (1976) has claimed that the early grammars of second language learners are characterized by a "...non-marked, simple code resembling a pidgin" [p. 406, see above; cf. also Corder (1975)]. Schumann feels that early ILs may reflect a regression to a primitive set of universal linguistic categories previously manifested in early primary language acquisition. Support for the existence of a universal progression of grammatical features in primary language acquisition comes from Slobin (1973) who, based on a set of cross-cultural observational universals, has posited as intrinsic to the human child a series of "operating principles" which in effect establish the character of early grammars. Schumann's position seems to entail the plausible hypothesis that second language learners apply these same "operating principles" to the task of learning a nonprimary language. In our terms, the claim implies that the executive functions of linguistic NFS reapply acquisition heuristics which had directed early primary language acquisition, producing IL infrasystems of the same general character as the early infrasystems of primary language.

Crucial to determining the nature of any reaccessing of the heuristics of primary language acquisition for any given learner would be the level of the communication hierarchy which the learner identifies as the most appropriate initial basis for IL learning. A learner who has opted for the "lexical level" (see Lamendella, 1977a) would manifest different linguistic categories than one who has opted for the (higher) level at which the operating principles of Slobin (1973) apply. It is the child's first true language-type grammars which, from approximately two years of age, manifest the primitive, universal linguistic categories to which Schumann alludes. On the other hand,

the learner who has opted for the application of the highest levels of language structure as the basis for IL learning, perhaps under the influence of formal cognitive operations (see Rosansky, 1975), should not be expected to manifest universal linguistic categories since the extremely rich and complex syntactic, discourse, and speech act phenomena constructed at this level tend to be language specific and closely tied to cultural-specific world-views (see, for example, Witherspoon, 1977). Thus it is perhaps the case that those linguistic features which are universal in a formal linguistic-theoretical sense exists only at the level of the child's first language-type systems during primary language acquisition. The cessation of further IL learning which characterizes the phenomenon of fossilization for adults may, in the final analysis, be heavily constrained by the closed system represented by the learner's particular language-culture bound world-view.

There is an intuitive sense in which NFS rule schemata at levels below the level of the communication hierarchy selected by a given learner as the most appropriate basis for his or her initial communicative interactions will tend to 'fall into place' under the impetus of the rules constructed at the higher level. However, the situation for that learner may be quite different for rule schemata at levels above the level of the NFS which began the learning task. To be successful, the learner must know when to 'let go' of the level initially chosen and 'opt up' to a higher level NFS which is actually the most appropriate basis for learning more complex TL linguistic phenomena. For example, NFSs responsible for clause level syntax might be unequipped to induce the rule schemata underlying English tenses or articles, many of which operate at the discourse level (cf. Lackstrom, Selinker and Trimble, 1970, 1973). In this sense, a learner may fossilize because he or she failed to move up to higher levels of the communication hierarchy which could accomplish further IL learning.

Whether in fact either of both of early speech production and speech comprehension systems of some or all second language learners reflect a regression to a universal set of primitive linguistic categories is an empirical question, and, while we find this claim of Schumann (1976) plausible, no firm conclusions may be drawn until suitable evidence has been gathered.

3. THIRD SAMPLE PERIOD (Features Observed: x, y, s)

(a) ILs posited: IL-J [X_j Y_j S_j]

(b) Conclusions: Based on Data Sample #3, it may be concluded that a new, more advanced infrasystem, IL-j, has been constructed and been allocated prime control over speech interactions with TL speakers. For the sake of our illustration, we may recognize IL-j as the first IL which minimally satisfies the interactive communication needs of this learner, and thus IL-j is the first candidate for fossilization. It should be noted that, although IL-i is not evident at this point in the learner's speech production, on general principle it may be assumed that IL-i continues to be stored in long-term memory in latent form. Other things being equal, surpassed infrasystems are not erased or eliminated, and thus have achieved latent stability. This assumption is supported by the frequent observation of surpassed linguistic features and linguistic systems reemerging intact under certain conditions, as discussed in Selinker (1972). The fact that reemergent systems are intact as systems implies a series of discrete infrasystems.

As discussed in the preceding section, from the macro-behavioral perspective, we wish to view "IL learning" as involving a cline progression marked by an irregular, but continuous gradient of change within a single IL diasystem. However, from the neurofunctional perspective, we shall consider IL learning to involve a progression of discrete, autonomous infrasystems, with the most advanced infrasystem in the series (the IL norm) ordinarily having prime control over speech behavior, but with surpassed infrasystems liable to reestablish their control over behavior under appropriate conditions. This discrete view accounts for the sudden, dramatic reemergence of an IL system long absent from the learner's speech performance.

4. FOURTH SAMPLE PERIOD (Features Observed: x, y, s, r, z)

(a) ILs posited: IL-i [X R]; IL-j [X Y S]; IL-k [X Y Z]

(b) Conclusions: Data Sample #4 was obtained during the transitional period which marks the end of the span of a surpassed IL and the beginning of the span of a more advanced. During such transitional periods, any or all of the infrasystems in a unified progression may alternate control over behavior in a complex fashion, and the monitor mode of the NFSs operation may also be active (cf. the inferred schemata x, y, s, z). We may label as atavistic backsliding the re-emergence of surpassed linguistic features based on regained prime control of IL infrasystem, or rule schemata in speech behavior at any point after the span of the infrasystem responsible for their acquisition. Selinker (1972) considered "backsliding" to be intimately bound up with the notion of fossilization (see TABLE 1), but we agree with Adjemian (1976) that "backsliding" in general and fossilization are not mutually entailed. The situation is more complex than can be accounted for in terms of an undifferentiated notion of backsliding (cf. the discussion of normative backsliding below).

5. FIFTH SAMPLE PERIOD (Features Observed: x, y, z)

(a) ILs posited: IL-k [X Y Z]

(b) Conclusions: Data Sample #5 finds IL-k in firm control over TL communicative interactions, with IL-j and IL-i assumed to have latent stability and to be accessible under certain circumstances. For the sake of our illustration, we will consider IL-k to be the first IL infrasystem which is capable of satisfying the sociocultural interactive needs of the learner, and again a potential point at which fossilization may occur.

As mentioned above, different levels (and different discourse domains [cf. Selinker and Douglas, 1985]) of language structure may be differentially fossilized at varying degrees of approximation to TL norms. As Scovel (1977) notes, for adult learners it appears to be more typically the case that IL phonology is fossilized at a greater distance from TL norms than IL syntax. Limitations of time and space prevent our dealing with this issue in the detail it deserves, but clearly it relates to the position of phonological infrasystems at a much lower level in the communication hierarchy of NFSs than syntactic infrasystems within the hierarchy. More generally in neurofunctional hierarchies, NFSs sitting at lower levels tend to be more highly specified in the genetic material and to involve critical periods with much

tighter time constraints than NFSs at higher levels (see Lamendella, 1977a). In our view, while NFSs themselves involve biologically based critical periods during which their development is facilitated, the infrasystems constructed by a given NFS may involve sensitive periods whose controlling factors go beyond the biological domain.

The fact that second language learners below the age of puberty tend as a group to have more success in approximating TL phonological norms (cf. Oyama, 1975), suggests that age is likely to be a crucial factor determining whether, when, and how fossilization might take place in particular learners in particular situations. Differential fossilization of IL Phonological infrasystems seems consonant with the position of Rosansky (1975) on the role of formal cognitive operations in terminating the period when secondary language acquisition is facilitated, since the lower level phonological processing might well be less subject to the effects of conscious manipulation than syntactic processing. In any case, we wish to stress the probable role of age as a contributing factor in the cessation of IL development and hope to return to this issue in the future.

6. SIXTH SAMPLE PERIOD (Features Observed: x, y, z, u, t)

(a) ILs posited: IL-k [X_k Y_k Z_k]

(b) Conclusions: Data Sample #6 finds IL-k still in control of the learner's TL communicative interactions and it is tentatively hypothesized that fossilization (i.e. the end of the period during which novel IL infrasystems are constructed) has occurred. Based on the data samples obtained thus far, no conclusions may be drawn concerning the permanence of this cessation of IL learning. It should be noticed that such a cessation of IL learning in this sense does not preclude the observance of novel linguistic features produced when the system operates in the monitor mode, and we conclude that the linguistic features u and t, produced by the rule-schemata u and t are examples of this postsystematic involvement of the executive.

Linguistic features produced as the result of monitor control over speech performance during the postsystematic period are unstable in the sense that, under conditions of stress or high demands on processing resources, one may observe the tendency pointed out in Selinker (1972) for the occurrence of backsliding toward the IL norm. In terms of our reformulated IL hypothesis, the "IL norm" is the most advanced IL infrasystem whose control span is still in effect. While the executive may withhold control from this central IL infrasystem and produce speech behavior evincing a more 'advanced' level of grammar, under certain conditions normative backsliding occurs in which speech performance reverts to the level of proficiency possible for the central IL infrasystem (cf. the discussion of atavistic backsliding above).

As a final consideration, we wish to point out the importance of a fourth function of language beyond the three cited by Smith (1972)--i.e., "communication", "expression", and "integration". This function tends to be invisible to the macrobehavioral perspective since it relates directly to the intrinsic organization of cognitive information processing systems. However, there can be no doubt that in a real sense it is at least as important a use of human language as interpersonal communication. This representational function of language arises in primary language acquisition at the point when linguis-

tically formulated propositional information structures provide an internal coding framework for the representation in long-term memory of episodic and generic knowledge about the world (cf. Lamendella, 1977a). For our species, these symbolic linguistic representations play a dominant role in such cognitive activities as problem solving, memory storage and retrieval, imagination, and reasoning and perhaps SLA (see Bley-Vroman, in Press).

In order for an IL to serve this representational function, it must have attained a requisite level of sophistication and utility, leading eventually to the property shared by all natural languages to be able to represent any proposition. The point at which a second language learner's IL begins to represent propositions in short and long-term memory processing as an alternative to representations based on the NL infrasystems may arise early in secondary language acquisition (as suggested in Lamendella, 1977a), or possibly only at some advanced point. For our purposes, it is sufficient to note that for those learners with a need to efficiently represent and process "encyclopedic" knowledge in a form which lends itself to efficient TL communication in specific discourse domains, fossilization is not likely to occur before this representational use of the IL develops. This would apply, e.g., to such rhetorical discourse phenomena as learning to write technical material in a second language (cf. Selinker and Trimble, 1974). TL "text learning" of this type has been barely investigated. Note that we are here conceiving of a type of differential fossilization that is sensitive to human representational structures. In these sense, the attainment of an appropriate representational capacity may constitute a fourth aspect of the lower bound on fossilization, along with the three types of interactive needs we have discussed in this chapter.

6.4 A SET OF RESEARCH PROBLEM AREAS CONCERNING FOSSILIZATION

From our discussions to date, it appears clear that we have to distinguish at least the following separable research areas when we seriously attempt to consider the phenomenon of fossilization: (a) the nature of, (b) the source or; (c) the objects of, (d) the manner of, (e) the initial point of, (d) the persistence of, and (e) the candidates for fossilization. The overall question we wish to consider is:

How can we systematize our theoretical understanding of nonprimary language acquisition and apply this understanding to future empirical investigations so as to begin to answer the following research questions?

A. NATURE OF FOSSILIZATION

(1) Is fossilization a phenomenon peculiar to nonprimary language acquisition, or is it a more general condition also relevant to primary language acquisition, or perhaps also to more general cognitive learning phenomena?

(2) Is stability over time of a linguistic feature all that is at issue in understanding fossilization, or is there a sense in which fossilization involves more than this?

(3) Is fossilization a positive process which acts to halt further development of the IL, or is it a way of looking at the absence of some positive force which when lost would tend to result in the cessation of further learning?

B. SOURCE OF FOSSILIZATION

(1) Will the basic explanatory domain in terms of which fossilization can be described most appropriately be (a) factors external to the individual learner? (b) factors internal to the individual? (c) external factors filtered through the current information processing systems of the individual? (d) some combination?

(2) For a given individual, what are the relative contributions of cognitive, affective, social, communicative, neuromaturational, and genetic factors in determining what will be fossilized, when fossilization will occur, how it will occur, how long it will last, and under which conditions it might be surmounted and progress in IL learning resumed?

C. OBJECTS OF FOSSILIZATION

(1) Which aspects of a learner's IL are susceptible to fossilization? Single surface items? Particular rules? Subsystems? The entire IL?

(2) Are some linguistic features more susceptible to premature stabilization than others? In particular, is phonology in adults especially liable to fossilize before TL norms are attained?

(3) Is it reasonable to view linguistic features which are "correct" (relative to the TL) as being susceptible to fossilization, or is it only "incorrect" features which should be considered fossilizable?

(4) Can communicative competence in TL interactions fossilize independently of the linguistic form of the IL? Can linguistic form fossilize independently of communicative competence?

D. MANNER OF FOSSILIZATION

(1) Are there particular sequences in which given linguistic features fossilize? Which of any such sequences are universal, language specific versus learner specific?

(2) Is fossilization an abrupt event which happens suddenly? Is it a gradual process occurring over a span of weeks, months, or years?

(3) Does fossilization occur differentially for Foreign Language Learning in classroom settings versus Secondary Language Acquisition in naturalistic settings?

E. POINT AT WHICH FOSSILIZATION BEGINS

(1) When, along the learning process, will fossilization "set in" for a given aspect of the learner's IL?

(2) Is there any absolute lower bound on when fossilization could possibly first occur?

(3) Is there an absolute upper bound by which fossilization necessarily occurs (e.g., attainment of TL norms), or does the learner's interlanguage continue to be indefinitely permeable?

F. PERSISTENCE OF FOSSILIZATION

(1) Can it be determined for a given learner whether fossilization is merely a temporary plateau or a permanent condition?

(2) What conditions before, during, and after the period of fossilization would be necessary for a given individual to "de-fossilize" at some point?

(3) If there is a de-fossilization attempt made, or if the general conditions under which the learner operates change drastically, does it matter how long the learner had remained fossilized? Does it matter how old the learner was at the time fossilization occurred? Does the learner's age at the time of the de-fossilization attempt matter?

G. CANDIDATES FOR FOSSILIZATION

(1) Which learners may be identified in advance as likely candidates for premature fossilization at some great distance from TL norms?

(2) Why do some child second language learners appear to fossilize and others do not? Why do some adults fossilize at a greater distance from TL norms than others?

(3) What are the relative contributions of variables such as age, sex, motivation, intelligence, "foreign language aptitude," opportunity to learn and to practice in determining which learners will fossilize when?

The practicing teacher, by perusing this list, will see that we are still at the primitive stage of formulating adequate questions. Moreover, it is not entirely clear which perspectives on the problem would be the most productive for which purposes. If this list proves to be unambiguous, it could serve as a possible checklist for teachers who may wish to observe their students from this point of view. How-

ever, it is important to realize that there are complexes of variables which cut across the categories we have set up, such as the opportunity to learn.

Finally, it is important for teachers involved in the difficult task of daily language teaching to remember that there is nothing to suggest that one cannot achieve full communicative success in specific discourse domains. As pointed out in the Introduction, the existence of fossilized IL's for some learners in some circumstances should in no way prompt a pessimistic attitude on the part of classroom teachers. As we develop our understanding of fossilization with respect to the factors listed, it should become increasingly easier for classroom teachers to compensate for the reality of fossilization. This should be especially true if we are able to integrate this understanding with such tools as a realistic LSP need analysis. We now turn to the final chapter of this volume where we will present consideration of IL in terms of LSP and discourse domains.

VII. RESEARCHING THE DISCOURSE DOMAINS VIEW OF INTERLANGUAGE*

In the previous chapter, the concept of "discourse domains" was presented to help explain some types of IL variation, namely the fact that a learner not only appears to fossilize by linguistic level, but also according to areas of context, i.e. what we might call "differential fossilization" in qualitatively varying sorts of interactive situations and content. In that regard, we brought up one very important set of learner contexts, that of language for specific purposes (LSP). This final chapter is intended to explore some of these issues, especially to think through the problem of how a second language learner handles context and attendant IL form and how that relates to some of the major issues we have been discussing in this volume: language transfer, stabilization/fossilization and backsliding, various learning and communication strategies and IL variation.

In a nutshell, the theory I wish to propose is that we look at context in IL studies in the following way: that learners, as language users, in creating ILs, first create discourse domains, sometimes very personal ones, concerning various 'slices of life' that are important and/or necessary for these learners to talk and/or write about. Thus, discourse domains (DD's), for us, are internally-created contexts, within which, as a result, IL structures are created differentially (see also Selinker 1980 where the theory is first presented). In Selinker and Douglas (1985), empirical evidence is presented that at least one LSP domain and one non-LSP domain do, in fact, produce some differential results in the consequent IL structure and in the way non-native users of English actually structure information in IL discourse. IL and LSP are united, in this framework, in the following non-trivial way: that the important SLA processes, such as language transfer, fossilization, and backsliding, as well as avoidance, and various communication and learning strategies, do not occur globally across ILs, but rather differentially within discourse domains.

7.1 SOME BACKGROUND

In this section, I wish to discuss some background relating to the earliest conceptions of IL in SLA and the role of context and variation. Corder (1967) began the current interest in second language acquisition (SLA) with his monumental paper, "The Significance of Learner's Errors". In Corder (1967), as we discussed in Chapter 3, errors were viewed as highly systematic, serving as "windows" to the learner's progress (or, in Corder's terms, the "built-in syllabus") in the second language. In a recorded dialogue of mother-child interaction (which Corder attributes to Paul van Buren), errors are shown to provide insights into the child-learner's development of language:

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* This is an amalgam chapter of some recent work in the discourse domains theory of IL in SLA. Much of the material in this chapter was originally co-authored with Dan Douglas and is a revised version of portions of papers appearing in Applied Linguistics (1985, 6.2, 190-204), in Language Testing (1985, 2.2, 205-221) and in Tickoo (1986, 23-46). More detailed discussion on the topic of the interrelationships between interlanguage and language for specific purposes will be presented in a special issue of English for Specific Purposes Journal (1987), co-edited by Douglas and Selinker.

Mother: Did Billy have his egg cut up for him at breakfast?
Child : Yes, I showeds him.
Mother: You what?
Child : I showed him.
Mother: You showed him?
Child : I seed him.
Mother: Ah, you saw him.
Child : Yes I saw him.

(Corder, 1967: 167)

Corder uses this example to claim that the child (and, by extension, the adult learner) tests hypotheses. In this case, the child, according to this analysis, tests three hypotheses: "one relating to the concord of subject and verb in a past tense, another about the meaning of show and see and a third about the form of the irregular past tense of see." These hypotheses are presented by the analyst as a result of comparing the learner data with the expected target data. For the learner, in this early view, errors are "indispensible," since the making of errors can be regarded "as a device the learner uses in order to learn." Corder goes on to say, and this is most important, that the making of errors, which is "...a strategy employed by children acquiring their mother tongue and by those learning a second language..., is a way the learner has of testing his hypotheses about the nature of the language he is learning." Thus, we have two highly significant contributions here: that the errors of a learner, (whether adult or child) are (a) not necessarily random, but are in fact systematic and are (b) not "negative" or "interfering," in any way with learning a target language (TL) but are, on the contrary, a positive facilitative factor, indicative of the testing of hypotheses.

Corder's paper, in the error analysis (EA) vein, began to provide a framework for the study of adult learner-language. Along with the influence of studies in first-language acquisition, and with the concepts provided by the 'Interlanguage (IL) Hypothesis' (e.g. fossilization, backsliding, language transfer,[48] communication and learning strategies, etc.) this paper provided the impetus for literally hundreds of empirical studies carried out over the last two decades. One of the first was the classic EA study by Coulter (1968), which we discussed in Chapter 3, on the fossilized English of two elderly Russians long resident in the U.S.

What was not realized in the earliest IL studies, is how strongly IL performance can vary with context. Tarone (1983), for example, shows convincingly that both IL phonological and syntactic performance varies systematically with experimental task along what she calls the continuum of IL "style-shifting." (We will return to Tarone's paper in the next section.) It is an obvious truism, from the last twenty years of sociolinguistics, that speakers vary their language according to certain dimensions of context. What concerns us here is: exactly under what conditions is this true for a learner's developing IL?, i.e. how does an individual create an IL for him/herself and how does context affect the shape of this IL?

In summarizing our feelings on the current state of IL studies, we agree in general with Ellis (1982), who states:

The initial formulation of learner-language as systematic but unstable and as a reflection of the learner's 'built-in

> syllabus' has remained largely intact, although it is now generally realized that the systematicity of interlanguage (IL) can only be adequately described in terms of variable rules[49] which capture the context-dependency of the learner's use of his internalized grammar... It is also recognized that IL is not a simple accumulative process but rather a continuum in which overlapping stages can be identified... The principle tenet of IL theory that the learner constructs for himself a series of hypotheses about the grammar of the target language and consciously or unconsciously tests these out in formal or informal learning contexts, has withstood the test of both speculation and considerable empirical research.
>
> (Ellis, 1982: 207)

One general purpose of our work is to investigate the notion "context" for research and theory in IL and in SLA in general. We feel that until we are able to come to grips with the notion "context" in a double research framework, our work on IL will be at least incomplete, and perhaps wrong. The method suggested in this research is, by and large, qualitative, though quantification has a crucial, supportive role. We recommend that context in IL theory can be approached empirically by combining "grounded ethnography" in ethnomethodology with the "subject-specialist informant" procedure in "language for specific purposes" (LSP) studies. Our recommended approach is discussed below in Section 7.3.

7.2 TWO RELEVANT STUDIES: ELLIS (1982) AND TARONE (1983)

Working on the general research area of how an individual creates an IL for him- or herself, we have looked at the literature which deals with the question of the learner's "initial hypothesis", i.e. the starting point of the IL continuum. We here build on the insights of Ellis (1982)[50] by claiming that, in attempting to learn a second language, a person creates IL, evolving out of the use of what we will call discourse domains. We also claim that if we do not study IL in terms of context of this sort we run a risk of imposing an analytic system on an IL which will categorize the data in such a way as to falsify the learner's IL.

Ellis (1982: 216) suggests that the second-language learner [in his study, a ten-year old Portuguese boy in his first three weeks at a language center in London] "relies extensively on situational context 'speaking for him', and "can be observed to encode events that directly involve him." He also hypothesizes that the second-language learner "knows that language is syntactic" (p.216), i.e. "he operates with the assumption that the word-order is meaningful if this is also true for the L1." Importantly, for understanding what units learners use in creating an IL, in Ellis's data, "in no instance does the L2 learner 'break' the word-order rules of English...[i.e. the TL]...as these parallel the word-order rules of Portuguese...[i.e. the NL]..." This result was foreshadowed in Selinker (1969), as discussed in Chapter 2 above, where it was suggested, with a fairly large amount of evidence, that the surface structure unit of language transfer is not the "word" but a unit labelled the "syntactic string," a unit roughly equivalent to the traditional direct object, or adverb of place, or adverb of time or adverb of degree. Examples from the empirical study of Chapter 2 appear at Table 13 here. Importantly, of the data presented, i.e. from more than 4,000 utterances examined, these strings

of locative adverbial phrases or time adverbial phrases or object phrases were moved around as units in IL sentences, constrained in the following way: not once - just as in Ellis' data - is the internal structure of a syntactic string "broken" by another contiguous string or by elements of another contiguous string, and this was conditioned by domain (see table 2) i.e., one never got ungrammatical IL strings, such as appear in Table 14.

TABLE 13

Surface Structure Syntactic Strings

(a) I see him / a year ago
Ob Ti

(b) I saw the movie / a couple of days ago
Ob Ti

(c) I saw him / in his apartment
Ob Pl

(d) I study in school / math science geography gym art
Pl Ob

(e) I like English and Geography / best
Ob Ad

(f) I like best / Paul Anka Elvis Presley
Ad Ob

(g) I live in Forest Park Apartments / now
Pl Ti

(h) I lived five years ago / in Ramat Gan
Ti Pl

(from Selinker, 1969)

TABLE 14

Unattested Forms of syntactic Strings

(a) *I see a year him ago

(b) *I saw a couple of days the movie ago

(c) *I saw in him his apartment

(d) *I study math science in school georgraphy gym art

(e) *I like English best and geography

(f) *I like Paul best Anka Elvis Presley

(g) *I live in Forest now Park Apartments

(h) *I lived five in Ramat Gan years ago

We believe that IL constraints, such as this one, concerning the non-breaking of IL units, should help researchers in linking up language forms with context in IL studies.

A second study we have found extremely helpful in thinking about context and variation in IL theory, is that of Tarone (1983). Tarone shows that IL performance varies by experimental task. She quotes Schmidt (1980) for example, who shows that for the same learners, there is a variable "second-verb deletion" in four elicitation tasks. Tarone found that a similar pattern exists in the Fairbanks (1982) study of the IL morphology of a Japanese learner of English who almost never used the third-person singular -s ending in casual speech, but, in careful style, almost always supplied the ending. Other examples of such "style-shifting" in IL phonology, morphology and syntax are convincingly presented. Tarone distinguishes in her work between "style-shift" and "register-shift," noting that she is concerned with the former and not the latter. She claims that no speaker has only one style, but an IL learner may have only one register, with several styles. Thus, we feel that Tarone has shown convincingly that IL phonological and syntactic performance varies systematically with elicitation task. We wish to suggest that this IL variation with task is a subset of variation with context and that variation by domain is another subset of IL variation by context.

Our concern in dealing with context is closer to register rather than to style, but is not identical with it, since register, as traditionally used, is a concept which is product-oriented and external to the speaker, and not process-oriented and internal. We are interested in internally-created learner contexts, the mechanisms underlying the creation and structure of such contexts in IL theory and how IL forms relate to such contexts. In wrestling with these notions, we thus build on Tarone's convincing demonstrations of variation in IL behavior.

7.3 A RESEARCH METHODOLOGY FOR IL STUDIES

Our suggested methodology for studying context in IL theory combines (a) "grounded ethnography" in ethnomethodology and (b) the "subject-specialist informant" procedure in LSP studies. To this methodology we add the concept discourse domains. We discuss this concept in the next section.

In order to study IL context, which, as we have pointed out, is at least in part an internal construct, we are faced with the problem of wanting to access the intuitions and accounts of participants in communicative events concerning the events themselves. We find our overall perspective congruent with that of Widdowson, who in the LSP context states:

> What I am concerned with here is the discourse process itself, with the procedures which have to be engaged to set up a common frame of reference between interlocutors...Such a concern is basically ethnomethodological in character, since it looks at discourse from the participant point of view...
> (Widdowson, 1983: 68)

For us, as researchers in a university environment, the most important context for our students clearly is an LSP context where non-native speakers are trying to learn subject-matter in a second language,

English. Thus, we have combined two fields of study, IL studies and LSP studies. We found ourselves wanting to know, for example, what an engineer understands to be the meaning of a particular text in engineering, or what the author of a technical manual feels to be the significance of a particular rhetorical/grammatical correspondence in a particular text. More relevant to the present paper, we wished to study the participants' ability to use English in talking about their technical field, the degree of precision[51] with which they could communicate in that field, comparing this with such abilities in another context. This endeavor required that we record not only the descriptions and commentary of the participants involved in the interaction studied, but also the descriptions and commentary of "expert" observers of the event in order to piece together the notion of "context" in technical, and non-technical, discourse.

7.3.1 Grounded Ethnography

We have been influenced in our work by principles of ethnography and ethno-methodology where researchers have found it important to be able to study not merely the occurrance of features of an interaction, but the relationship between the features in real time. In IL studies one needs to be sure that one's methodology and theories incorporate as a central component the notion real time, since, by definition, SLA takes place over time. This is an apparent, though often ignored constraint on IL methodology and theory construction. Thus, it is necessary to record not only the incidence of features in a communicative event, but also, perhaps primarily, the complex correlation of elements in the event as they occur. In particular, we have found the version of ethnography termed by Frankel "grounded ethnography" to be especially useful in our work. Grounded ethnography provides "a means for the researcher to understand an event by studying both its natural occurrance and the accounts and descriptions of it provided by its co-participants." (Frankel and Beckman, 1982). Frankel (pc) has referred to grounded ethnography as providing a "window" on an interaction; this perspective appears to us to be similar to Corder's, as cited above, referring to error analysis as providing such a window on the learner's language.

We have adapted the methodology of grounded ethnography to our research: in this method, videotape technology is employed to record a communicative event, such as a conversation about a technical field, between a non-native speaker of a specific-purpose English and a native English speaker who is a non-specialist in the technical area. The resulting videotape is then reviewed by the co-participants, and by expert reviewers, such as specialists in the technical field (to comment on the technical "correctness" and appropriateness), linguists of various types (to comment on the many levels of language and interaction apparent to them in the text), and other reviewers. The commentary by these reviewers is also recorded. We can distinguish between the original videotape, which we term "primary data" and the commentaries upon it, which we term "secondary data". The reader should note that we have here two separable forms of data, each contributing to our understanding of context in IL studies.

In the first place, we have the primary data, which can be analysed by linguists, ethnographers, or other researchers, who can apply to it their various perspectives and methods. But we also have secondary data, the commentaries provided by the co-participants and by

expert reviewers, which can assist in uncovering additional data, not necessarily accessible to the analysts from the primary data alone.

Frankel and Beckman (1982) provide detailed examples of the results of this methodology from the perspective of ethnography. They study medical encounters in an out-patient setting between resident physicians and their patients. Frankel (1984) shows an example of a repair phenomenon in the primary data and how it can be analyzed. But we have modified grounded ethnography to deal with one of our background research questions: what is the nature and role of context in the formation of ILs in real time?

7.3.2 Subject Specialist Informants

We take the institutional perspective in which we work - the university - applying grounded ethnography to studying the attempt by non-native speakers to learn subject matter in an LSP setting, noting that the study of IL that such learners produce has not been integrated into such settings before, to our knowledge. That is, unfortunately for applied linguistics, up until now there has been a separation between what we see as two closely related areas of study: LSP studies and IL studies. More on this later.

In general, the subject-specialist informant (SSI) procedure in LSP studies concentrates on written technical communication and not on the talk that produces it. This has been explained in detail in a paper entitled "The use of informants in Discourse Analysis and 'language for specific purposes'" (Selinker, 1979). Our methodology takes account of the modifications of this procedure by Tarone et.al. (1981), and by Huckin and Olsen (1984) in their attempted replication of Selinker (1979). Additionally, we have made use of several notions in terms of an "optimal research strategy" for LSP studies, which is proposed in Bley-Vroman and Selinker (1984), especially the notion "highly valued text." The interested reader may wish to consult these references for technical details; here we outline several of the main points.

Selinker (1979) presents the characteristics of a "good" subject-specialist informant. These are summarized in Bley-Vroman and Selinker (1984) as follows:

1. The informant should be trained and competent in the technical discipline.
2. The informant should, in most cases, teach in the discipline, ideally with non-native speaking students.
3. The informant should care about the learning problems of non-native speaking students.
4. The informant should have a feel for technical language and be open to questions about the use of language.
5. The informant should be able to explain clearly what he believes scientists in the discipline do when they do "science."
6. The informant should see the potential importance of ESL/EFL and of LSP research to his or her own teaching and should, ideally, be willing to read some basic LSP literature.

7. The informant should be willing to give technical answers careful thought and reflection, and be willing to change his or her mind if the original formulation seems incorrect.

(Adapted from Bley-Vroman and Selinker, 1984)

That is, the best subject-specialist informants are intelligent and enjoy reflecting on and articulating their subject-matter concerns. Bley-Vroman and Selinker (1984) add to the discussion of the characteristics of a good specialist informant, questions relating to the process of dealing with the informant. They present a discussion on fourteen problem areas related to the gaining of technical information in scientific and technical discourse. The fourteen problem areas address such issues as how one should approach an informant; the types of questions an informant should be asked; the LSP/EAP person who may not even know what he or she needs to find out; searching for patterns in the data; development of the analyst's technical knowledge in the discipline under investigation; validation of the informant sessions; the fact that there is a breadth of knowledge necessary that no one individual can possess; the fact that not all techniques work on all occasions; and disagreement which may occur among informants. In the next section we move to a detailed discussion of discourse domains.

7.4 DISCOURSE DOMAINS (DD)

I would like to now present our current best-shot definition of discourse domains:

> A discourse domain is a personally, and internally created "slice" of one's life that has importance and over which the learner exercises content-control. Importance is empirically shown by the fact that in interaction one repeatedly talks (or writes) about the area in question. Discourse domains are primarily dynamic and changing, and may become permanent parts of a learner's cognitive system. Some domains may be created temporarily for particular important purposes. The concept also has a discontinuous aspect to it in that a domain can be taken up, dropped, left dormant and revived. Such domains are usually thus not fixed for life but may change with one's life experience - and often do.

The criteria for recognizing a discourse domain are thus importance to the learner, interactional salience, discontinuousness, control of content (in that the learner knows about the topic, but not necessarily the language to express it), and the fact that such domains are highly personal. An important additional feature of some domains is temporariness. Take, for example, the discourse domain "talking about one's own research." We see this domain at work with graduate student colleagues working on doctoral dissertations. Such colleagues have reported feelings such as "these days I can only talk about my own research - I can't talk about anyone else's" and "before going on a job interview, I have to read up on other people's work now in order to be able to talk about it in case someone brings it up." We reasonably expect a temporary aspect to the strength of this domain.

Though it is important to emphasize that learners do create very personal domains that are not necessarily shared by other individuals, one gains generalizability by conceiving of "prototypical" discourse domains: individuals often create similar domains such as "life

story" domains, "talk about work" domains, "defending one's culture" domains, etc. It is the notion of prototypical domains and texts that are typical of a domain that we feel provides a link with the creation of intelligibility in L2 performance, and also with our view that the closer the language task is to prototypical IL contexts, the greater the likelihood that the learner's interlanguage competence will be engaged and measured.

Fishman (1968; 1971) uses the concept of domains, which we build on, but in a way significantly different from ours. Fishman claims that the choice of a language in various communities, including bilingual ones, varies from domain to domain, and that domains are composites or combinations of particular kinds of speakers and listeners talking about particular topics at particular times. In our concept of discourse domains, we do not mean only variation by context external to the speaker (in our case, the IL learner), the major concern of sociolinguists. Fishman (1971: 50) formulates his concept in the following way: "Just where the boundaries come that do differentiate between the class of situations generally requiring one variety from the class of situations generally requiring another variety must be empirically determined." He then goes on to claim that "such classes of situations are referred to as domains." He states that it is the task of a descriptive discipline to discover these boundaries and which varieties apply to them. We agree with this latter point.

The notion discourse domains appears in the SLA literature on two occasions that we know of: Selinker (1980) introduces the concept and Perdue (1984, Chap.5) discusses the concept in terms of the "arrangement of information in discourse." Perdue (1984) seems to be struggling with the notion of context in much the same way as we do here and his notion of domain is at times very close to our own. As one goal of current research, we have to be able eventually to provide a more precise definition of discourse domains, especially to provide an extensive definition which would not only present boundary criteria, but also a listing of at least some domains that one would expect to be able to find empirically. Delancey (pc) has, on the other hand, suggested that we should be careful here, as this may be an unattainable goal in practice, since creating contexts in conversation is an ongoing process of infinite variation.

Perhaps an example - based on observational and experiential, but not empirical, data[52] - will help elucidate this point. We are acquainted with a Pu'ish applied linguist and have been listening to his Polish-English IL for several years now (observational data). We wish to suggest that he has created for himself, and he agrees with this (experiential data), at least the following two discourse domains which are important to him:

1. The first we will call "being an international professor who lectures in English";

2. the other we will describe as "telling stories about Poland in English after drinking several vodkas".

In this regard, we would claim the following, and believe the data to show its plausibility:

> In the first domain, that of "being an international professor lecturing in English", our colleague's use of the modal "should" in his English IL appears to be no different

from ours; whereas, in the second domain, that of "telling stories about Poland after a certain number of vodkas", his use of the word "should" in his English IL becomes quite different from what we would do. What he appears to do is repeat the word "should" more often in the discourse than we would do in a continuous narrative.

The point is that in order to describe our colleague's absolutely fossilized Polish-English IL accurately, one cannot set up a category "modal" and talk about "obligatory contexts" and the like. We would claim that one cannot even set up a category "modal" in a normative sense, since we do not believe that in our colleague's IL the other so-called modals work this way. The modal "should" in the "vodka/story-telling domain" is, we would claim, linked to individualized narrative structure and temporal verbs that are not very English-like and may be related to rhetorical transfer effects. Externally imposed categories, such as modal, verb and article, in this IL just seem to us to miss the point. An example of domain-specific use would be insertion of the word "should" in sentences with "if-clauses," e.g. "If Krystyna should go to Warsaw, I should drink a toast." To repeat, our colleague does not produce IL structure of this type in the professorial domain, but produces instead TL-like "correct" utterances.

In our view, what one must discover are those discourse domains internally set up by our Polish colleague - some more, some less consciously - and describe the important grammatical phenomena linked to them. In this view of IL studies, developing IL grammars are worked out context-by-context in terms of discourse domains. As we show in the next section, what is comparable across domains are primarily rhetorical phenomena, and this is what links IL studies with a linguistics of particularities. What we suggest here is that in IL studies, as with language studies in general, one should be wary of a linguistics of universals created before we have notions of in-depth particularities.

We must point out that the idea that fossilization and the other processes mentioned must take account of context is not a new one in IL studies. The notions of fossilization and backsliding arose, in fact, in an LSP context in the following way about 1966 or 1967: in the Pharmaceutical Department at the University of Washington at that time, students in the second Quarter of their MA programmes had to present oral reports on their work-in-progress. The following phenomenon was noted: a Thai student in that course during his presentation, in his English IL, could not be understood by his professor or his fellow students, when only five minutes before and five minutes after the presentation he was perfectly comprehensible in his English IL to all of them. Our feeling is that, in that discourse domain, he was engaged in some sort of backsliding to an earlier state of IL learning. [This is described in Selinker, 1980].

Ellis (pc), with regard to the concept of personally created domains, brings up the example from Stevick (1980) where a student performed at a higher level of proficiency when discussing an album of photos that were important to him. Ellis states that this example shows how the learner's motivation is tied in with the concept of personal domains, "i.e. the level to which a learner is motivated to use specific scripts will lead to further individual variation in performance, reflecting IL organization." Ellis' notion of internally created contexts differs from ours in that he wishes to argue for a

hierarchical theory of scripts with what we have called discourse domains at the highest level.

7.5 PRINCIPLES FOR TEACHING AND TESTS

Discourse domains, then, are internally created contexts, within which, importantly, IL structures are created differentially. For teaching and tests to be relevant to the current state of IL knowledge, they must differentially engage such domains. In order to interpret test results, correctly for example it must be known which states of IL are engaged when the test is taken. The notion of prototypicality is the means by which we would overcome the seeming difficulty of accessing personal internally created contexts. It seems reasonable, then, to assume that when test takers are confronted with test texts there are three possibilities:

(1) they engage already existing domains to deal with the text,

(2) they create temporary contexts to do so, or

(3) they may flounder, unable to deal effectively with the text at all.

We take the strong hypothesis that these choices are ordered, so that an already existing domain will be chosen if one is recognized as relevant to the task demanded by the test item; a temporary context will be created if no relevant domain is recognized to exist with respect to the item; non-systematic variation will occur if neither (1) or (2) are selected.

With regard to these choices, we are first reminded here of a notion, reported to us by Elaine Andersen (personal communication), of 'cognitive load' in explaining why language users experience varying degrees of fluency, or proficiency, in language use. When already existing domains are engaged, we propose that the tester will get a clearer picture of the IL competence of the learner, while the picture will be less clear in the second possibility where temporary contexts must be created by the learner, and an extremely unclear picture would be produced by the third choice where the learner is attempting to cope with a heavy 'load' in dealing with a strange language use situation. This picture is complicated by the fact that some testees have been specifically trained in relevant test-taking procedures, i.e. becoming 'good contextualizers' for test items. We hypothesize that in this case a meta-domain is created, permitting pseudocontextual control, thus making it difficult to judge what a particular item measures. We believe that we have such cases in our data, and discuss one below. For now, we wish to discuss the notion of control in more general terms.

It has been discovered in child language acquisition studies, for example, Hecht (1982), that when a learner is in control of the topic, the learner activates 'framing mechanisms' which display different kinds of competence in the domain under control, than when the learner is not in control. In the latter case, it appears to be a much harder task to communicate with the cognitive load being more difficult. Shatz (1978) argues in a similar vein that the information burden is heavier on participants in contexts not under contorl. When in control, it appears that the learner commands all aspects of the

task except the presentation of information, with the major problem being the form of language. When not in control, there is a host of other problems impinging on the cognitive load. For example, what the information is, how to structure it and so on. What seems very clear is that there is a different display of abilities on the part of the same learner in different contexts.

As an additional variable, we must expect and build into our testing principles the notion of random or non-systematic variation in IL in other than a statistical way. Ellis (1985: 121) presents this argument most strongly, concluding that 'Non-systematic variation is ... extremely important for understanding how interlanguage evolves'. He argues that the 'statistical criterion' is inadequate for explaining IL data, since it cannot recognize variation in contextually similar situations, especially where in the learner's IL two forms perform the same illocutionary meaning. Ellis (1985: 128) takes the view that IL 'can be described as a series of variable systems'. We will not develop this important view of IL any further in this paper.

We would hypothesize that when already existing domains are engaged, a clearer picture of the IL competence of the learner must be rendered than when the learner is forced to create a temporary context (which may or may not serve him well in engaging his IL competence) or when a struggle to contextualize produces floundering. Thus, we see a continuum of proficiency related to domain engagement, with the upper end representing domain engagement, the lower end an inability to contextualize at all. The key factor, as stated above, appears to be that of contorl.

In Douglas and Selinker (1985), we present fifteen hypotheses, which the reader might wish to consult, concerning the language testing enterprise, hypotheses which are implied by a DD view of IL in SLA.

7.6 SAFE RULES AND ACADEMIC DISCOURSE DOMAINS IN INTERLANGUAGE

Swales (1986: 21) ends his RELC paper for the "Language Across the Curriculum" Seminar with the following statement:

> The foreign language learner needs equally to learn ends as well as means; otherwise that learner may be prone to fossilization, to survivalist communication strategies, and to the modes and genres of the mother culture in all the ways that are only too familiar to us.

As discussed in previous chapters in this volume fossilization, which is explicitly mentioned, and language transfer which is strongly hinted at, are the interlanguage (IL) concepts per excellence. Fossilization refers to the cessation of IL learning, often far from target language (TL) norms, and language transfer refers to cross linguistic influence, usually from the native language (NL). What Swales captures in his paper is that fossilization and language transfer in the LSP context are, in some way, context specific. That is a strong argument for the theory proposed in the second paragraph of this chapter.

In order to study this integration of IL and LSP, I believe we should first look at IL use in the practical context, studying the linguistic content of successful and non-successful academic achieve-

ment in the TL, and the underlying processes, strategies, and constraints that create that content.

An important premise is that the view of Davies (1984) is correct, that:

> "learners of second language [are] not concerned with final outcomes (i.e. with becoming native speakers), but rather with partial outcomes, and that in SLA [second language acquisition] the major focus must be on process".

Thus, the notion of partial outcomes suggests that while learning a second language is systematic, as the IL hypothesis holds, it is different from first language learning with regard to outcome: what second language learners may do in their ILs may be different from what native speakers do but, importantly, to us as well as the learners we teach, no less effective and legitimate. Davies (1984) puts it more elegantly:

> We have yet to realize the potential of such a construct [IL], namely, that there are acceptable and usable levels of achievement in language learning which do not approximate native speaker outcomes. What interlanguage may yet do is to provide a satisfactory explanation of this 'partialness', i.e. it may be that second-language learning is actually promoted by the recognition and rewarding by teachers not only of correct part-knowledge but also of incorrect part-knowledge.
>
> (Davies, 1984: xii)

Correspondingly, the pedagogical notion of "safe rules" (Selinker, 1979) insists that learner's intentions and their clarity are what matter, certainly as much as what native speakers (NSs) happen to do to fulfill a particular task. Pedagogical safe rules are described in Problem 7.4 of the "Specific-Purpose Acquisition" section of the WORK-BOOK IN SECOND LANGUAGE ACQUISITION as:

> pedagogical statements about the organization of writing which if followed by a student should allow the writing to be understood as intended (Selinker and Gas, 1984: 141 emphasis in original).

Note that learner intentions and the understanding of various types of readers are the keys to this concept, [In the reference just cited two safe rules are presented: topic statement and comparison and contrast. More have been written since.] If a learner's partial outcome, which is guided by a pedagogical safe rule, "gets the job done," we claim, the learner has achieved an important IL base on which to allow his/her non-native (NN) language to grow in terms of precision in expressing meanings. Pete Becker argued, in a lecture at the University of Michigan (13 March 1985), that "safe rules" are needed in place of target language (TL) experience with "prior texts". We need to study how IL performance, with and without such safe rule experience, makes up such deficiencies. It follows that in order for integrated teaching to be effective in close relation to academic disciplines, learners partial outcomes, both independent of and dependent on, teaching intervention, must empirically be determined.

The particular point of view, in our on-going research, is that the study of "what learners actually do," i.e. their use of IL in

various academic contexts, including academic discourse domains, can and should, help provide a framework for curriculum and materials development in integrated LSP language teaching. For educational purposes, one of the most critical questions is how well a learner is able to use needed linguistic devices in conversational and/or classroom academic contexts.

Since one of our basic ideas is that IL is learned within discourse domains, than data reflecting internally-motivated talk (or writing) must be gathered to understand how communicative abilities are acquired. The academic discourse domains idea rests on the assumption that, in addition to concepts of language that model external and public linguistic behavior, one needs cognitive information where communicative intent, internal structuring of context and self-initiated utterances are the central focus of investigation. We need this information if we are interested in the linguistic content of academic achievement in the TL. Our perspective hypothesizes that students cannot learn to become more precise in the language of the academic subjects they are learning without control over content of the domains they are learning, from which attempts at precise form follow.

In the learning setting, partial knowledge of the type talked about above implies incomplete domains. There has to be a point, at least with some domains that control IL, where the learner is developing a domain in the context of language and subject matter learning. What the successful teacher, be s/he language teacher or teacher of curriculum in general subjects, appears to do is concentrate the learner's attention into a manageable domain, e.g. the semantics/pragmatics of writing about a lab report, from which, I would propose that precise linguistic content follows. Then the successful teacher would extend the situations and functions for which language forms are first learned within a specific domain, to that of another, say the writing about a term paper. I would assume that this task is done primarily through rhetorical means. The IL notion of partial outcomes and partial knowledge is important. Please recall that our perspective says that it is not necessarily what NSs do that is relevant, but what successful users of the TL, in particular discourse domains, can tolerate as successful completions of particular tasks in terms of relevant IL form. Pedagogical safe rules help us get there, this perspective helping us in a practical way to understand what it might be worth focussing on.

Besides the possible advantages to materials developers of the academic discourse domains perspective, this perspective can help those interested in integrating curriculum development to help teachers to help their students understand their own learning. That IL can be found in young school learners under certain sociolinguistic conditions has been known for some time. Please note that I am here talking about academic discourse in terms of subject disciplines, whether primary, secondary or tertiary. This view concerning the internal perspective of learners appears to me to be true irrespective of the level of learning.

Thus, understanding IL within an academic discourse-domains perspective can give us a number of keys as to what learners actually do, both with and without safe rule input. It also provides us with a methodology for empirically studying what we do pedagogically within domains and its potential effects on learner academic and linguistic production across the curriculum. It can also provide us with some understanding of the current IL base of the learner, upon which he or

she needs to grow, i.e. to learn to become more precise in terms of the linguistic content of academic achievement in the TL. This is what I think Swain (1985) means by "comprehensible output", which appears to be necessary in terms of IL precision and control, factors necessary for learning but quite difficulty to gain in ordinary classrooms. If the learner understands that to do a certain task, that learner needs to use certain forms to be comprehensible to relevant speakers of the TL, then the learning focus is away from difficulty with TL form to control of both means and relevant ends, ends that are both intrinsically linguistic tied up with academic. Finally, this perspective can provide one source of realistic linguistic guidelines for general curriculum developers, guidelines that should relate meaningfully to the relevant IL produced by learners in that situation. If the teaching and testing of TL material is too TL dependent, it misses the IL insights of (a) correct partial knowledge, (b) the value of the possibility of positive reinforcement of some incorrect partial knowledge for particular purposes and (c) important teaching procedures based on safe rule teaching of the linguistic content of successful academic achievement in the TL to match professional domains so that mutually-beneficial communication can occur. If your interest is in this area, I urge you to pay attention to your own attempts to achieve in your own situation, the linguistic content of successful academic achievement. This may help you understand what it is that your joint-students are dealing with in that situation. What kinds of information are you jointly trying to achieve and what kind of rhetoric are you using to try to do that? And what NL and/or IL forms are being used? Pay attention to the issue of control. It is a much harder cognitive load to attempt to communicate when you are not in control of the other person's domain, and this is most likely the situation of both the subject teacher and the language teacher. When you begin to feel control of the domain content, you should begin to feel greater control of relevant linguistic form.

Davies (1984) in the article mentioned above, talks of "particular", "partial outcomes", and "part-knowledge." From the development of these thoughts he comes to the conclusion that "...second-language acquisition is systematic, with its own logic." We must integrate this IL insight into our LSP teaching if we are truly interested in integrated curriculum development. Not to do so misses, in my opinion, the real possibility of a clearer understanding of the IL our learners create while they go about learning language as they struggle with the intellectual and linguistic content of academic and professional achievement. The key to this study, I believe, is to try to empirically discover which sorts of IL we can relate to successful academic achievement and which sorts of IL we can relate to unsuccessful achievement. I know of no studies in this area.

To end the volume, I would like to try to pull together many of the thoughts discussed here and present some current issues[53] in the attempted integration of IL and specific types of contexts, in this case LSP contexts:

1. In a principled way, how are we to integrate into our LSP thinking the IL talk and writing our students produce in abundance in LSP classrooms?

2. How does restricted, special purpose language use differ for native speakers and non-native speakers?

3. How might context-specific recognition and reinforcement of some types of incorrect "part-knowledge" aid IL learning in LSP contexts? Which types?

4. Which IL forms and structures in which LSP contexts are associated with successful LSP learning and which are associated with unsuccessful LSP learning?

5. What would be the shape of pedagogical and/or testing principles that specify IL form and structure by LSP contexts?

6. In which LSP areas might fossilization be beneficial to IL learners, and what aspects of the IL system might we want to try to encourage toward fossilization?

7. What evidence is there that IL/LSP forms, structures, concepts or abilities may transfer from one context to another? Is there any evidence that some may not?

8. Can we identify and teach to our students which IL "safe rules" are essential within particular LSP contexts?

9. What is the relationship of strategic competence to LSP contexts? Are some strategies universal, others context specific?

10. How do comprehension and non-comprehension of LSP texts affect IL development in LSP contexts?

11. How much variation in IL communicative competence is there? And do certain individuals show more variation than others as they move from one LSP context to another? How much can such variation be related to: (a) background, (b) formal schemata, (c) levels of confidence?

12. How would the use of "subject-specialist informant" procedures affect our understanding of the above issues?

We will make the most progress in understanding these issues in IL, especially in practical LSP contexts, in my view, by integrating into our thinking the notion discourse domains. The DD's concept attempts to get at what speakers actually have to say, where communicative intent and self-initiated utterances are the prime source of our information, which we gain in the methodological way hinted at above. Contextual support of both an external and an internal type enhances the learner's abilities to produce complex utterances in terms of precision of intended meaning. This latter matches the results gained in the impressive work on child language acquisition conducted by Hecht (1983). However, the child language case is not the IL case and that is the essence of the IL Hypothesis. The very young child can be expected to gain precision in terms of the adult "target", whereas the IL speaker may gain precision in IL terms that may not be that of TL. Namely, this is one case where the concept of fossilization fits in. The learner may achieve an acceptable level of communicative control for his or her purposes that may imply a cessation of IL far from TL norms. [cf. Davies, (1984) on partialness statement above.] We find that learners create or impose their own internal domains and domain structures on new situations. We see this as a justification for

distinguishing between the philosopher's notion "universe of discourse" and our notion of "discourse domains." The former is a notion which, though valuable, is too external to the learner, not accounting for the creation of IL form. What counts is not the external notion that the learner is talking about X, but what the learner's internal structuring of context is in terms of intended meaning and communicative intent. In the classic context of second language learning, it seems to us that students learn second languages in classroom settings within these internalized domains which, again, may be very personal, in spite of whatever external structuring a teacher might give to input.

FOOTNOTES

1. Although this chapter solely concerns the influence of a native language upon a foreign language, one would eventually wish to include in a comprehensive and explanatory theory of language transfer, the influencing of a foreign language not only by the native language but by another foreign language, i.e. by a second IL and, finally, the phenomenon of influence upon the native language by a foreign language. Here the question is one of bidirectionality. [See Chapter 2 for discussion and examples.]

2. The Hebrew transcription used here follows the phonemic system described by Blanc (1960). Words are divided according to the standard Hebrew writing system.

3. Within the conceptual framework presented here, the reader should bear in mind that it is not the intent to write a grammar at any level of adequacy (Chomsky, 1965) but to experiment with observable phenomena and to operationally generalize from the experimental results to some processes underlying foreign-language performance and learning.

4. An "interlanguage" may be linguistically described using as data the observable output resulting from a speaker's attempt to produce a foreign norm, i.e., both his "errors" and "nonerrors". It is assumed that such behavior is highly structured. In comprehensive language transfer work, it seems to me that recognition of the existence of an interlanguage cannot be avoided and that it must be dealt with as a system, not as an isolated collection of errors. This notion of interlanguage is developed in Chapter 3. With regard to individual differences, the status of the interlanguage as an unambiguous system is still not clear; this concept should be further developed in the coming years. For another (and in the long run compatible) approach to IL form as structured behavior highly revealing of underlying processes, see Corder, 1967.

5. Statements derived from a contrastive analysis were superfluous at this stage since the Israeli's English sentences, i.e., the output of the "interlanguage" (In 4), were now experimentally available for descriptive analysis.

6. Copies of the transcripts of these 170 English sentences appear in the Appendix to Selinker and Gass, 1984.

7. A technical distinction is in order here: ARRANGEMENT is used to mean the specific order or sequence of syntactic strings, and is symbolized by a hypen, e.g. Ob-Pl; COMBINATION is used to mean the occurrence of the strings in either arrangement and is symbolized by a plus sign, e.g., Ob + Pl equals Ob - Pl and Pl - Ob.

8. All probability values reported here were calculated according to the quantity chi square (df = 1) as defined by McNemar (1962, p. 209).

9. In fact, frequent observations of the order Pl - Ob in both the Hebrew and interlanguage behavior of Israelis was what originally led to the formulation of this project. See discussion concerning examples 1-3.

10. For many reasons, particularly the fact that frequencies for these three categories do not occur for five of the six experiments.

11. The author hopes that those readers who are not happy with a normative statistical approach to syntax will note their approval in cases where the system allows alternatives such as Ob - Ad and Ad - Ob. It turns out, I think, that a statistical approach is one of the requisties for doing this kind of experimental work. The alternative, which I hardly find satisfying, is to argue about what English or Hebrew "allows for".

12. However, each of these four examples has a long object, and a long object was not the defining characteristic of category (g) either in the Israeli's Hebrew or in his interlanguage behavior. A breakdown of the American's English data similar to that at the bottom of Table 2 would be Ob_n - P138, P1 - Ob_n0 for categories (a) (b) (c); Ob_n - P114, P1 - Ob_n 4 for (g). This breakdown shows that for categories (a) (b) (c) the trend toward Ob_n - P1 was absolute. Even in category (g), the trend toward Ob_n - P1 was still at a significant level, though not at a highly convincing once ($p < .02$).

13. Neither teacher was aware of these scores when he established the three proficiency levels.

14. As regards the phrase "the same alternative," the underlying assumption here is that "interlingual identifications" are made by the speaker in his choice of alternatives, e.g., phoneme /p/ in both languages is equated. Weinreich (1953, pp. 7-8) discusses the need for assuming interlingual identifications. See Chapter 3 for more discussion of this important concept.

15. The answer to this question is not obvious since it is well known that theoretical considerations help point the way to relevant data. See, for example. Fodor (1968, p. 48): "... "how we count behaviors and what is available as a description depends in part on what conceptual equipment our theories provide ...."."

16. Adult is defined as being over the age of twelve. This notion is derived from Lenneberg (1967. e.g., pp. 156, 176) who claims that after the onset of puberty, it is difficult to master the pronunciation of a second language since a critical period in brain maturation has been passed and "... language development tends to 'freeze'" (Lenneberg 1967, p. 156).

17. First pointed out by Harold Edwards.

18. See Lawler and Selinker (1970) where the relevance of counterfactuals to a theory of second language learning is taken up.

19. Chomsky (1969, p. 68) expresses a very similar view:

> ... it must be recognized that one does not learn the grammatical structure of a second language through 'explanation and instruction' beyond the most elementary rudiments for the simple reason that no one has enough explicit knowledge about this structure to provide explanation and instruction.

Chomsky gives as a detailed example a property which is clearly central to grammar: that of nominalization (Chomsky 1969. pp. 68 and 52-60). I see no point in repeating Chomsky's detailed arguments which clearly show that a successful learner of English as a second language could not have learned to make the judgements Chomsky describes though "explanation and instruction".

20. We have also idealized out of our consideration differences between individual learners which makes this framework quite incomplete. A theory of second language learning that does not provide a central place for individual differences among learners cannot be considered acceptable. See Lawler and Selinker (1970) for a discussion of this tricky question in terms of profiles of idealized learners who differ one from the other with respect to types of linguistic rules and types of meaningful performance in a second language. The current work on variation, referred to in Chapter 1 above, is an attempt to make up for the overidealization of earlier versions of SLA thought.

21. Notions of such separate linguistic systems have been developed independently by Jakobovits (1969) and Nemser (1971).

22. The notion interlanguage is introduced in Selinker (1969), revised as Chapter 2 above.

23. Gillian Brown has pointed out (personal communication) that we should work here toward a dynamic model where fossilization would be defined relative to various perhaps arbitrary chronological age groups.

24. John Laver has helped me to clarify this point.

25. Several people have pointed out (personal communication) that, in this paragraph, there appears to be a connection solely between fossilization and errors. This connection is not intended since it turns out that "correct" things can also reemerge when thought to be eradicated, especially if they are caused by processes other than language transfer.

26. To describe this situation, Jain (1969, 1974) speaks of functional competence. Corder (1967) using the term transitional competence focuses on the provisional aspect of developing competence in a second language. Both these notions owe their existence in the first place to Chomsky's (1965) notion of linguistic competence which is to be distinguished from actual linguistic performance.

27. An interlingual situation is defined as a specific combination of NL. TL and IL.

28. This sentence and sentences like it were in fact produced consistently by a middle-aged Israeli who was very fluent in English.

29. I am indebted to Wayles Browne (personal communication) for clarification of this point.

30. Reported by George McCready (personal communication).

31. Ian Pearson (personal communication).

32. Elaine Tarone (personal communication).

33. That is, what Corder refers to as the learner's "built-in syllabus" (Corder 1967).

34. Example from Tom Huckin (personal communication).

35. Example from Briana Stateman (personal communication).

36. The drive a bicycle example may in fact fit this situation (see Jain 1969, p. 24).

37. Example from Sol Saporta (personal communication).

38. As was pointed out in note 7. Chomsky (1969, p. 68) also adds the ability to provide native-speaker-like grammaticality judgments.

39. The fact that Haggard is concerned with alternative units which are inclusive in larger units has no bearing on the issue under discussion in this section.

40. This finding is reminiscent of Kellerman's (1983) discussions of the importance of learner "psychotypology" in language transfer studies.

41. This notion of "power" of strategies related to IL stability remains, in my opinion, still worth investigating.

42. To review, the following definition appears in Chapter 4: Non-simultaneous child-language acquisition settings are opposed to simultaneous child-language acquisition settings (see Swain 1972; Swain and Wesche 1973). Simultaneous child-language acquisition refers to the learning of two native languages, i.e., the learner is exposed to two languages from birth and learns them concurrently as two first languages. Non-simultaneous child-language acquisition refers to the learning of a first language followed by the learning of a second language in childhood once the first language is established.

43. Thus, these IL grammatical structures are, to some degree, similar to the "rules" described by Lado (1967: 51-56).

44. It is important to report that the approach taken in this section has been criticized as "the comparative fallacy". See Bley-Vroman (1983). For a detailed response, see Selinker (Forthcoming).

45. The term "communication function" is used by Schumann in accordance with the distinction proposed by Smith (1972) of three main functions served by a language: the communicative function, the expressive function, and the integrative function. Vigil and Oller (1976) use the term "cognitive dimension" in a manner most closely related to Smith's communication function. Their term "affective dimension" seems to approximate Smith's notion of expression function. Schumann's term "psychological distance" seems to also relate to the affective-expressive domain, but also encompasses certain other personality and attitudinal factors.

46. Swain (1978) states that some predictions made in Chapter 3 above about the fossilization of these children for grade one seem to be holding for grade five; specifically some more recent data have shown that the same kinds of "errors" show up.

47. See L Fillmore (1976) for a discussion of the role of formulas in second language acquisition and their relation to social strategies.

48. Technically, the notion of "language transfer" was integrated into IL theory, having been studied earlier in the contrastive analysis (CA) framework. See Selinker (forthcoming).

49. It may be quibbling, but we agree (a) that variation must be seriously taken into account to "adequately describe" the learner's use of his internalized grammar, but disagree (b) if Ellis is claiming that variable rules are the only way to do this. Huebner (1983) for example, uses a Bickerton-type "dynamic paradigm", and there are other possibilities. [Ellis (p.c.) now agrees with this modification.]

50. Ellis (1982) adequately reviews the literature on this topic; thus it is superfluous to repeat his discussion here.

51. Swain (1983) argues that for the learner to progress beyond a certain stabilized stage in IL learning, he/she needs, in addition to "comprehensible input" (Krashen 1983), "comprehensible output." This latter is obtained when the learner is forced to be more and more precise in the second language. Important to EAP studies, is Swain's conclusion that the opportunity for comprehensible output is greatly limited in the classroom.

52. In Selinker (forthcoming) three types of epistemologically-different data are distinguished: experiential data are those data derived from a learner's individual experience with language learning, for example, a diary study; observational data are those data derived from observing learners in action, for example, a teacher observing his students; empirical data are those data derived from a carefully-planned and well-executed study, possibly qualitative, possibly quantitative, possibly experimental. It is our working perspective, epistemologically speaking, that these are three equivalent types of data, given the inchoate state of our knowledge of context in IL studies.

53. These issues were developed with Dan Douglas to present to colleagues interested in contributing to the special issue of the English for Specific Purposes Journal on IL and LSP mentioned in the starred footnote of this chapter. In developing these issues, we received help from the ESPJ co-editors Ann Johns and John Swales, help for which we are most grateful.

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